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PHYSIOLOGY.

LECTURES
ON THE
PHYSICAL CONDITIONS
OF THE
TISSUES OF THE HUMAN BODY
AS APPLIED TO THE EXPLANATION OF
VITAL PHENOMENA.

Delivered at the College of France in 1834,

BY F. MAGENDIE,
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LECTURE II.

Prevailing Errors relative to Absorption.—All the Tissues imbibe, the Serous most rapidly.—Imbibition of the Lungs.—The Lining Membrane of the Alimentary Canal.

GENTLEMEN,—It is a consequence which you must have already derived from the experiments you saw yesterday, and the observations which I had the pleasure of laying before you, that all animal tissues, without exception, possess a peculiar property inherent in them, which we have called imbibition. This is the only certain result which we can draw from the principles established, and I hope to show you that it is of immense importance in explaining many phenomena connected with the human frame which have hitherto been neglected by physiologists, or referred to certain fantastical and gratuitous properties which reason and experience can never admit.

Some time ago, Gentlemen, absorption was considered as a very complicated function. At that period the science was made up of hypotheses, and it was imagined and taught, in private and in public, that the living tissues, and particularly the membranes, the parietes of the vascular system, &c., were incapable of imbibing different substances, from the mere circumstance of their being endowed with life; that, in short, they rather resisted the tendency to imbibition. Hence a vital phenomenon was created to explain absorption; it was said that all the living tissues were furnished with a multitude of peculiar vessels, opening on the different surfaces, with little mouths, like the extremity of the intestinal canal, or the pylorus. These absorbent mouths were endowed with a special tact, or sensibility, of a new and exquisite nature; they were said to open and shut at pleasure, and to take up or refuse the substances offered to them; but this was not sufficient; physiologists went even so far as to endow them with a species of mental intelligence, whereby they were said to distinguish what was advantageous for the economy at large from what was injurious. Thus a metaphorical expression, borrowed from the life of animals, became the foundation of a wide-spread theory, which originated more than half a century ago, and still exists with nearly equal credit.

It is unnecessary to say how universally this opinion of the existence of absorbent mouths, possessed of a peculiar sensibility, prevails in modern works; but from what you have seen, you must now be prepared to admit this theory as a romance invented to cover our ignorance, and transmitted, without examination, from mouth to mouth, not as the expression of a fact established by experience. On the contrary, I have shown you that absorption consists in the simple imbibition of substances placed in contact with the living tissues, and that there is no exercise of any choice in the reception of one fluid, or repugnance to admit another, because the corrosive quality of liquids or solids submitted to absorption does not oppose an obstacle to their introduction into the system; and it would even appear that these latter are taken up more readily than substances which do not exercise a destructive influence on the tissues.

The principal object of my last lecture was to teach you that all the tissues imbibe. There is indeed a great difference in the rapidity with which substances are

absorbed by the different membranes. Imbibition is more rapid in the serous membranes than in the mucous,—where the tissue abounds in vessels than where it is less vascular, &c.; but the phenomenon is observed in all parts of the body. You saw that solids were taken up, no matter where we applied them; medicinal substances were placed in contact with the eye, mouth, surface of the skin, the membranes lining the internal cavities, such as the lungs, stomach, intestinal canal, &c., the arterial and venous tissues, &c.; they were all transported into the economy, and the fact of their introduction was proved by the different effects which resulted, according to the nature of the substance so applied.

But we are possessed of means to hasten the progress of absorption; we can impede the introduction of a medicinal substance at pleasure, or we can arrest imbibition altogether. This phenomenon, Gentlemen, is of the highest importance in a therapeutical point of view, and may be applied with the utmost advantage to certain cases in which the life of the individual is gravely compromised, as in the case of a bite of a rabid or poisonous animal, or where we desire to arrest the imbibition of a morbific matter into the blood.

You must be prepared to allow, that substances which are absorbed, can only enter the economy in very small quantities at a time, because there are no openings or pores in our tissues through which they are freely received, as most of our modern physiologists would endeavour to persuade you. Thus, for example, substances placed in contact with the stomach, after undergoing a peculiar change, are absorbed and taken up; but the minutest inspection with the microscope, or otherwise, does not show the existence of any kind of openings on the surface of that organ; hence you are to understand that during imbibition substances must undergo a very minute subdivision, and that there is no chance of large globules of matter being received into the circulation, where there are no open canals through which they may pass.

Let us now endeavour to see whether imbibition takes place to an equal degree on all the surfaces of the human body, or whether, as we might *a priori* conclude, there are not some more peculiarly adapted for the exercise of this function than others.

Imbibition, Gentlemen, does not take place with equal intensity on all tissues, and it may be laid down as a general rule "that surfaces habitually in contact with the atmospheric air, or external agents, are most proper for the introduction of solids or liquids from the exterior to the interior of the body."

In this point of view the human frame may be distinguished into three great surfaces—viz. the pulmonary surface, the digestive canal, and the integumentary surface or skin. Let us commence with the lungs, and take up the skin and the surface lining the alimentary canal in turn. We shall thus be enabled to review a vast variety of circumstances connected with the exercise of our principal functions, and to show you that a study of the physical conditions of the tissues is calculated to clear up many obscure points in physiology, while, at the same time, it lays the only sure and safe foundation upon which future investigations can be laid.

The pulmonary surface, at least that part of it to which I now propose to direct your attention, is chiefly distinguished from the other two great surfaces of the human body, by the absence of a mucous membrane. You know that the lining membrane of the trachea descends into the bronchi, and is recognizable on the inner surface of all the tubes which serve to conduct the air into the body of the lung itself; but the ultimate divisions of the bronchi terminate suddenly, and do not penetrate into the spongy tissue of the organ; hence it is more than probable that the surface with which the atmospheric air is placed in contact is deprived of a mucous lining, and the most minute researches of the anatomist are unable to demonstrate its existence in this part.

If you examine the intimate structure of the human lung, you will find it composed of the subdivisions, infinitely repeated, of the pulmonary vascular system, enveloped and connected together by a fine layer of cellular tissue. I have said that the anastomosis and intercrossing of the pulmonary vessels are infinite. It is this arrangement of small tubes, connected together by a parenchymatous tissue, which constitutes the pulmonary cellulosities or areolæ. In the human body they are so fine and delicate as to require the aid of a strong glass to distinguish them, but the disposition which I have just described to you is seen in the most evident manner in the lungs of certain cold-blooded animals, particularly in the reptile tribe.

It is unnecessary for me at the present moment to enter into any extensive anatomical details on the structure of the human lung, I shall have occasion to speak of that organ more fully in a future part of the course; it is sufficient for our immediate object that you be acquainted with

the great extent of surface presented by the *ensemble* of the pulmonary areolæ. The lungs, Gentlemen, or, to speak more exactly, the surface of the pulmonary cells, offers, therefore, a medium through which medicinal substances may be introduced into the economy to a great extent, and with astonishing rapidity. The external agents, indeed, which most ordinarily act upon the lung are gases of different kinds, particularly atmospheric air; but for the present we shall lay this part of the subject aside, and only consider what happens when a solid is placed in immediate contact with the pulmonary tissue.

In order to understand more clearly the phenomena of imbibition in this part of the body, let me direct your attention to two peculiarities of structure in the lung; the membrane which composes the air-cells is extremely fine and delicate, and therefore gives a ready passage to substances offered to it; on the other hand there is a free communication between all the branches of the pulmonary vascular system whether arterial or venous, and the passage of blood from the minute radicles to the heart is very rapid.

These, Gentlemen, are the physical conditions which the lung presents as an imbibing organ, viz., a delicate membrane to be traversed, and a rapid circulation from the capillaries to the central organ. Hence you may draw the conclusion, which experience confirms, that when a substance is placed in contact with the pulmonary surface, it is imbibed with a great degree of rapidity. Indeed, nothing can be more surprising than the energetic and almost instantaneous manner in which certain substances, when introduced into the lungs, act upon the economy at large, producing a variety of effects, more or less injurious, and in many cases sudden death. You are to understand, however, that these latter remarks apply only to poisonous or other noxious substances which equally affect the system, no matter with what part of the body they may be placed in contact; because if the substance applied to the pulmonary membrane be of an innocent nature, it gives rise to no more inconvenience than if it had been taken into the stomach. Of this fact we have a striking example furnished in the annals of surgery; it is rather ancient in date, but not the less valuable or applicable to the illustration of the question before us.

You know that in many cases of wounds dividing extensively the anterior region of the neck, the trachea and œsophagus may be cut through, without the life of the patient being necessarily compromised. Now in accidents of this severe nature, it is often indispensably required to pass a tube through the œsophagus into the stomach, and feed the patient for a certain time in that manner, in order to give the divided parietes of the canals an opportunity of reuniting, without the process being disturbed by muscular contraction, the passage of aliments, &c. or other causes of irritation. Dessault had to treat a case of the kind just mentioned, but, either through inadvertence or negligence, he introduced the gum-elastic tube into the trachea, down to the subdivision of the bronchi, instead of passing it through the œsophagus to the stomach. In this state of things several injections of soup were thrown into the lungs before the mistake was discovered and rectified, but we are not told that any fatal or even dangerous consequences ensued. Hence we may conclude, that if any accidents were really produced by the introduction of the soup into the pulmonary cells, they were of a comparatively slight nature, and this conclusion has been confirmed by experiments repeated since the time of Dessault.

Various substances of an innocent nature have been thrown into the lungs, without deranging the economy; they occasion some slight difficulty and trouble of respiration, excite coughing, &c.; nothing more. After a very short time they are imbibed by the membrane, removed with the circulating mass, and all the unpleasant symptoms which they may have occasioned disappear. This depends, as I have already explained to you, not only on the extreme delicacy and permeability of the pulmonary parenchyma, but more particularly on the immense quantity of small vessels with which the whole surface of the membrane is studded. On every point of the tissue there is a vascular tube ready to receive the substance imbibed, and carry it rapidly to the great source of circulation, whence it is removed with different secretions, but chiefly in the form of insensible perspiration through the medium of the same organ which first gave it entrance. I shall dwell at length on this latter fact when we come to speak of eximbibition; it has been incidentally noticed here to show you how necessary it is to be acquainted with the physical conditions of each organ and tissue, particularly with respect to the arrangement and number of the smaller vessels, in order to understand the various phenomena of absorption in different parts of the human body.

The knowledge, first acquired by hazard, that substances may be thrown into the lungs in some quantity without danger, has led physicians to propose the injection of medicinal fluids into the inte-

rior of the organ in cases of pulmonary phthisis. You are all familiar with the experiments which have been made with the vapours of prussic acid, narcotic substances, and iodine; perhaps the same remedies might be injected with advantage. If, however, you are disposed to make trial of this mode of treatment, remember that when an active substance is placed in contact with the pulmonary membrane, its dose must be considerably diminished. You cannot, in short, administer the ordinary quantity of any powerful medicine through the medium of the lungs, without incurring the danger of giving rise to grave accidents. You must, therefore, proceed with caution, and commence with a fraction of the dose which experience proportionates to the stomach.

It is of importance, Gentlemen, to establish this fact, and impress it on your memories, as a very slight error in quantity may occasion the death of the patient; let us, therefore, have recourse to an experiment:—We will inject a quantity of poisonous fluid into the lungs of a dog, and show you the rapidity with which the poison is taken up and carried into the economy. You may safely calculate, from what you will see in the dog, the effects of the substance on the human body, because there is no difference of any importance in the action of poisons, &c., in man and dogs, or any other of the higher animals.

This is a proposition to which there are very few exceptions, and they are chiefly to be found as we descend in the scale of creation; for warm-blooded animals I know of no difference worth taking into account, unless, perhaps, it be that man, from the extreme sensibility of his nervous system, is affected by a smaller dose. I have dissolved a scruple of the extract of nux vomica in a small quantity of fluid, and now proceed to inject it by means of a syringe into an opening, which we have practised here, in the anterior surface of the trachea of this little dog. The whole of the fluid has now been thrown in, and, if I am not deceived, you will almost instantaneously witness its poisonous effects on the animal. Ah! the medicine begins to operate; ten seconds have elapsed since its administration, and you now witness its rapid and energetic action: the dog has fallen suddenly down, deprived of all muscular power: you observe a few convulsive motions of the mouth, a few violent inspirations, and he is now dead.

Here the action of the medicinal substance has been instantaneous, and you are able, from what I have said of the vascularity of the lung, to understand why. The experiment also proves to you that the dose of any powerful agent must be carefully modified and diminished, when it is introduced through the medium of the pulmonary surface. You may also remark the striking difference of sensibility exhibited by the membrane lining the air passages at different parts of its traject. Above, near the entrance of the glottis, in the larynx and superior portion of the trachea, nothing can be more sensible than this membrane. You have all witnessed the violent and spasmodic cough produced when a drop of water "goes astray," as it is said, and lodges about the glottis; but as we descend, this delicacy of sensation diminishes and finally disappears, so that at the lower part of the trachea you may introduce any quantity of fluid without fear of injuring the sensibility of the organ; this is a fact in medical physiology which is of some importance, and may be applied with practical advantage to several circumstances of disease. The effects which you have just witnessed take place when the substance applied to the pulmonary surface is in the form of a liquid; but if it be solid, you either have no action produced, or it is expelled by expectoration as a foreign body, and this latter most ordinarily occurs. Thus cartilaginous bodies, tubercles, portions of ossified bronchial glands, &c., when they become detached and lie loose in the smaller bronchi, excite a degree of irritation and cough, by which they are forced into the larger tubes, and ultimately discharged with the matter expectorated; when, however, the solid body is of such a nature as to be readily dissolved by the secretions of the air cells, it enters into the conditions of a fluid, and is imbibed with more or less rapidity, according to its degree of solubility.

Let us now pass to a consideration of the second great surface in the division which we have established, viz., the alimentary canal. The extent of tissue presented by this surface, its vascularity, and the peculiar conditions of structure by which certain portions of the intestinal tube are distinguished, contribute to render this part of our subject worthy of peculiar attention, not to mention the important therapeutical considerations which are attached to it, as the chief, indeed almost exclusive, medium by which we are in the habit of introducing medicinal substances into the system.

If you examine the digestive organs, as a whole, you will be surprised to find with what exactitude they resemble a chemical apparatus, and how admirably each part is adapted to fulfil the peculiar office

it may be called upon to perform: above you have a grinding machine, disposed in the most perfect manner, and in many respects far superior to those employed in the arts to obtain analogous results; after this a long narrow tube, to conduct the comminuted materials into a peculiar reservoir, where they are submitted, for a greater or less length of time, to the action of a peculiar fluid; and, finally, another tube, much more extensive than the former, where the substances introduced sojourn for a considerable period, and are mixed during their passage with a variety of liquids, the necessary agents of the operation which is to be effected.

We might here enter into several useful and interesting details, on the evident relation which exists between the nature of the aliment on which each species of animal is nourished, and the disposition of his digestive apparatus, but this would lead us too far from the subject which we have proposed to discuss; let us, therefore, conclude by a few brief considerations on the physical peculiarities of each portion of the alimentary canal in man; you will thus be able to appreciate more readily what I have to say on the connexion existing between these properties, and the phenomena of imbibition.

The first thing which must strike you, is the vast difference of aspect and even structure presented by the mucous membrane lining the different portions of the canal: in the mouth it exhibits one character, in the œsophagus another. The membrane lining the stomach differs from that which enters into the composition of the great and small intestine; and, finally, at the two extremities of the tube, it gradually lays aside the structure of mucous tissue, and becomes skin. Again, remark the difference of vascularity in the several portions:—the abdominal surface receives an infinitely greater number of vessels than the superior portion, where the vascularity seems barely sufficient for its nutrition, and the inconsiderable secretion of which it is the seat.

The superior orifice of the digestive apparatus commences at and includes, as you all know, the cavities of the mouth and pharynx; these will not detain us a long time, as they do not present anything very remarkable, although they are occasionally chosen by the physician under peculiar circumstances, as the medium for the introduction of medicines into the economy; the surface of the tongue is extremely villous, porous, and furnished with a quantity of small bloodvessels, as you may judge from the manner in which it bleeds on the slightest cut; the gums are also very spongy and permeable; hence, as I said, medicinal substances are sometimes rubbed on the membrane lining the interior of the mouth and gums, and are thus conveyed into the economy; but this is a simple fact of imbibition, and does not present any circumstances worthy of a particular consideration. The situation and structure of the œsophagus prevent it from being selected as a medium for the introduction of external agents; the œsophagus is merely a carrying tube, an organ of transport; its intimate structure corresponds with the function it has to perform, and is by no means advantageously disposed for the imbibition of substances. The mucous membrane lining this portion of the tube is pale, even whitish, and exhibits a smooth surface, which contrasts strongly with the villosities of the stomach and small intestines; besides this, it is constantly clothed with a thick, viscid, mucous matter, which prevents any intimate contact with the material passing along it, while the rapid contractions of the muscular layer absolutely render any sojourn of a substance in this tube impossible. All these conditions are, as you see, unfavourable to imbibition; but not so in the stomach, the grand reservoir of our nutriment, the crucible in which all the materials of the human body are prepared and elaborated. The stomach is not only the receptacle for nutrient matter, and the various fluids &c. we are in the habit of daily swallowing in quantity, but is also the medium which physicians, from time immemorial, have selected as the most convenient for the introduction of remedies, whether in a liquid or solid form; hence we should particularly study the conditions of imbibition in this organ, and follow up the many important practical considerations to which it cannot fail to give rise.

You are already acquainted with the general anatomy of the stomach, its form, connexions, &c. In a physiological point of view, it may be divided into two portions or moieties; the one situated towards the left side, which has the greater dimensions, may be called the "splenic" part, from its connexion with the spleen; the other, which is smaller and more contracted, I have been in the habit of calling the "pyloric" portion. These two portions differ, not only in the part which each contributes to the formation of chyme, but also in structure. The pyloric portion is more villous, and furnished with a greater quantity of small bloodvessels than any other part of the organ; and this difference may be seen in the most striking manner in the stomach of the horse, where the mucous membrane lining the splenic portions is as different in appear-

ance from that of the pyloric, as the white and bloodless membrane of the œsophagus differs from the mucous lining of the stomach itself. It is unnecessary for me, no doubt, to demonstrate to you the numerous and fine villous flocculi with which the whole surface of the organ is more or less covered, or to describe the minute anatomical disposition of the villi, which are here more abundant than in any other part of the canal; but I would particularly mention one circumstance, which otherwise you might perhaps neglect to notice, but which has considerable influence in modifying, by its presence, the rapidity and energy of imbibition; and that is, that the surface of the stomach, and more particularly its splenic moiety, is constantly clothed with a layer of mucous matter, which adheres very intimately to it. At a future period of the course, I shall have occasion to notice the influence of this mucosity, and point out to you the analogy it bears to the epidemic covering of the skin.

Finally, there are few organs which receive so much blood as the stomach; four large arteries are almost exclusively destined to this viscus, upon the internal surface of which they are chiefly distributed.

The physical conditions of the inferior portion of the alimentary tube resemble sufficiently those of the stomach; it is composed of the same number of tunics, and lined with a continuation of the same mucous membrane; but it is necessary to remind you that the vascularity of the membrane continues to decrease, as we approach the inferior orifice of the tube, and that the villous arrangement is more remarkable in the neighbourhood of the pylorus than anywhere else, it being altogether absent in the great intestine, whose internal surface is smooth and pale, like that of the œsophagus. It also secretes an abundant quantity of thick, viscid mucus, presenting the same properties as the fluid found in the stomach.

At the late meeting of the *Brit. Assoc.*, Dr. Sharpey exhibited a preparation of the injected bloodvessels of the porpoise. The peculiarity of structure consisted in the prodigious number of flexuses formed by the arteries and veins, which are manifestly intended as receptacula for the circulating fluid while the animal is diving. The venous sinus in the seal, for the same purpose, has been long known.

Dr. Hodgkin's report on the effects of irritants on the mucous membrane of the alimentary canal, contained a fuller description of that tissue in a healthy state, than any which had previously been made.

UNIVERSITY OF LONDON.

ADDRESS

DELIVERED AT THE COMMENCEMENT OF THE

MEDICAL SESSION, 1834-35,

On Wednesday, Oct. 1st, 1834,

BY

PROFESSOR LINDLEY,

Lecturer on Botany at the University.

You are this day to witness the anomaly of one who is not a medical man, opening a medical session,—an anomaly which I could have wished any one to exhibit rather than myself, because, under the most fortunate circumstances, there must of necessity be something in such a position eminently embarrassing. It has, however, frequently happened that Botany, although so closely related, in some respects, to medical science, has been the most assiduously cultivated by men who were not immediately connected with the profession. This has, apparently, happened in consequence of the great extent, the numerous details, and the peculiar difficulties of the science, which demand much more constant study than men engaged in medical practice can possibly give to it; and hence the Professors at Cambridge and Glasgow are, like myself, entirely unconnected with medicine.

I am, however, relieved from a part of my embarrassment by two considerations; first, by the peculiar political aspect of the medical world, and, secondly, by the state at which the medical school of the University has now arrived. Now that the whole system of medical education is before one of the three great departments of the highest legislative body of this country, and that we are upon the eve of some important change in the whole frame-work of our medical institutions, it appears to me that a discussion of the defects of existing arrangements, or of the theoretical advantages to be derived from new ones, is better postponed. When we know the course which the government proposes to take in these matters, and the reasons upon which the decision at which it may arrive is founded, we shall be better able to judge upon what points argument or representation may be necessary. Were I, therefore, competent to discuss such a subject, I should purposely abstain on this occasion from doing more than insisting upon the indispen-

sable necessity of a medical education being rendered as *general* as is practicable. Seeing that medical men, from the high, honourable, and confidential position they hold in society, and from the influence they may, consequently, exercise for good or for evil, are continually called upon to form an opinion in matters not immediately concerning their profession, I do think it requires no argument to show that they ought to qualify themselves for so weighty a trust and so responsible a station, by a solid acquaintance with much more than the mere technical course of study prescribed by existing governing bodies, and secured by the ordinary routine of a school education. And, indeed, independently of this duty, such is most obviously their interest. The greatest of all the difficulties that a professional man experiences in starting in the world, is to gain a practice. A practice can only be gained by inspiring the public with confidence, and confidence is far more likely to be inspired by a man whose general attainments are superior to those of other persons in his own station, than by one who, except in what concerns his profession, is not better informed than his neighbours. People naturally suppose that if a man possesses knowledge of a high order in what they themselves understand, he will be pre-eminently skilful in his own profession; and the natural consequence is, their trusting the health of themselves and their families in his hands. Believe me, general information, as well as professional skill, is a prodigious help to a man who has to fight his way in the world. To enable medical students to gain this power by the requisite alterations in the rules of medical corporations is a solemn duty which the rulers of this country owe to the nation,—an act of justice which I feel well persuaded that the present government will not be deterred from performing, either by public clamour or private intrigue.

With regard to ourselves, in the beginning, when the University was young, the plan of instruction untried, the professors in many cases untried also, and the system incapable of being judged by its results, it was indispensable that the session should be opened by a preliminary lecture, in which the views of the professors could be generally explained, the system of teaching pointed out, and a variety of topics connected with medical education in general, insisted on. But this, I trust, has ceased to be called for. The seventh session of the University has opened; your professors are all known by the experience of former years; they have staked their reputation upon the hazard of their previous courses; an account of their stewardship has been rendered; and it is now for the public to judge whether or not it is satisfactory. The connexion of the various subjects embraced in the medical curriculum of the University was explained last year, by my colleague, Dr. GRANT, with, I trust I may be permitted to say, a rare felicity of expression (*immense applause*), and being printed, is within the reach of all. The results of our sysem of instruction are already dispersed throughout the empire; that they have not been unsatisfactory is, we flatter ourselves, sufficiently manifest by the gradual advance which has taken place in the numbers of our medical school. In 1831 we entered 248 students, in 1832 294, and in 1833, 353. If, then, we have deserved well of our supporters, if we have indeed fulfilled the expectations entertained of the medical school of the University of London, no arguments of mine can be necessary to convince you of that fact; but, on the other hand, if we have not redeemed the pledges that have been given to you, and if you have not found that advantage from attending this school which you were taught to expect, no eloquence of mine, if I am gifted with any, could give you confidence for the future; as no arguments, if I could condescend to use them in such a cause, would succeed in satisfying you for the past.

The only point on which I find it really necessary to speak is the *hospital*. Ever since the medical school began to prosper, it has been thought, by those best acquainted with such subjects, extremely desirable that there should be attached to the University an hospital, in which the professors might give *clinical illustrations* of the subjects taught in their lectures. But various obstacles opposed for a time the execution of this project; for you may easily understand that no small degree of energy, and sums of no inconsiderable magnitude, were required to render the University itself fit for your reception, and to fix it upon a solid foundation; and when, before the exhaustion attendant upon such efforts had been supplied, it was proposed to institute an hospital in addition, the difficulty of doing so, which at all times is very great, became unusually severe. The object is, however, at last accomplished; a school of *clinical instruction*, that most important of all the departments of a professional education, is prepared by the friends of humanity and of liberal opinions, and the principal part of the appointments to it are filled up. The Council of the University, to whose zeal and perseverance in this good cause I am happy thus to bear testimony,

retain in their own hands the right of making all such appointments, in order that they may be sure that the hospital of the University shall always continue what its founders destine it for, a school of *clinical instruction*, in which there may be illustrations, as frequently as possible, by the professors themselves, of the subjects taught within these walls. A list of the appointments, and an explanation of all the regulations connected with the hospital, will be made known as soon as the various arrangements shall be finally completed; and I have the pleasing duty of announcing that this long-desired institution, with accommodation for 125 beds, a greater number than is provided in several of the "recognised" hospitals, will be opened on the 1st of next November. From these subjects I now proceed to what is the proper business of this lecture.

Botany is, in the practice of some writers, if not according to their expressed opinion, the ART of classifying plants according to some artificial method, and of remembering their Græco-Latin names.

Such a study is dignified indeed with the name of science, but to my apprehension it is as much an art as that of recollecting the names of the drawers of a druggist's shop, without knowing anything of their contents. Others would admit what is called vegetable physiology as an essential part of botany, but they cannot dispense with artificial classifications, as a most important, independent, and fundamental subject.

But botany, when considered as a branch of physical philosophy, is subject to no such limitations, and knows of no empirical classifications; its range is wider far, and its character of a much higher order. It embraces not only the knowledge of the structure of all the minute and curious organs of which plants consist, and of the still more singular functions which they perform, and of the important effects which they produce both upon earth and air; but it also demands an examination of the relations which the several organs of plants bear to each other throughout the whole range of the vegetable kingdom; and of the laws which, when the functions of organs are altered or modified, govern the changes in their form from some primitive type. In the animal kingdom there is no example of one organ being employed, under new circumstances, to perform a new class of functions in a manner more curious or instructive than we meet with at every step among plants.

Another point of the utmost importance in botany is the study of the mutual relations that plants bear to each other. This is the key-stone of materia medica, so far as the vegetable kingdom is concerned, and is the only safe and practical guide which the practitioner can follow in experimenting upon vegetable productions previously unknown to him; and it is upon this ground in particular that botany is insisted upon in medical studies. The relations of affinity among plants are far less perceptible to the ordinary observer than those of animals, because the structure of plants is so essentially different one from our own, that analogies are habitually overlooked, until they are pointed out by the finger of science. We readily identify with those of our own bodies the limbs and external organs of the animal kingdom. We can recognise the head, the eyes, the legs, and the abdomen of an insect, as readily as those of an elephant; or can perceive at a glance wherein they are unlike animals of a higher order; the creatures we have been familiar with from our infancy typify in our minds the characters of the principal divisions in zoology. Mammals, birds, fishes, reptiles, insects, molluscous and crustaceous animals, have each their familiar representations even in the minds of children. But in the vegetable kingdom it is quite otherwise; organic beings, whose forms are entirely dissimilar from those of animals, convey no distinct impression to the mind, till they have been carefully studied. Far more simple than animals in their structure, they possess fewer and less obvious signs by which their mutual relationship is to be determined; and yet it is of the highest moment that these should be ascertained before botany can be applied, upon principle, to many most important subjects.

It is *not* names then, nor arbitrary classifications, nor vegetable physiology, considered as an isolated subject, which constitute the science of botany. The structure, function, and analogy of organs, and the mutual relation of species, are the really grand subjects of inquiry. An exact knowledge of structure enables us to understand distinctly how certain functions are to be performed, a comparison of one plant with another leads to the discovery of the analogy of their organs, and by means of such analogies we determine by what degree of resemblance or difference the affinity of species is to be settled. These points ascertained, we are able to proceed, *upon definite principles*, to apply our science to useful purposes, to discriminate, *upon principle*, between the species which yield products important in medicine, or otherwise, to control the operations of the husbandman, to direct the experiments of the colonist, and to arm

the world with new powers, the limits of which no one can pretend to estimate.

And this is the great point after all. It is a delightful thing no doubt for the philosopher to find himself able to lift the veil from before the mysteries of the creation; and it will be denied by no one, that to understand, however imperfectly, the design by which we ourselves, and all things material and immaterial which surround us, are constructed, and mutually adapted to the formation of one stupendous and harmonious whole, is one of the highest attributes of man, and one of the loftiest subjects of contemplation in which the human mind can engage. But, gentlemen, the lot of man is not generally cast in such a mould as will enable him to enter profoundly upon considerations of this kind, unless he finds them lead to some practical result, to some valuable end, by which his own condition, or that of his fellow-creatures, may be bettered. Astronomy, with all its glorious truths, is, probably, more valued by the bulk of mankind for its importance in navigation than for its noble philosophical attributes; and in like manner chemistry, by its universal and unlimited application to useful purposes; geology by its interest to miners and agriculturists; and zoology by the power it gives us over the useful or noxious animals that surround us, have acquired the great esteem in which they are popularly held, rather than by atomic theories, speculations in cosmogony, demonstrations of development, or other points of high philosophy.

Let me not be misunderstood. I do not say that you are not to love science for its own sake, without reference to mere utilitarian considerations; I am far from intimating that in theory the charms of science, and its effect in enlarging and liberalizing the understanding, ought not to be in themselves sufficient to induce us to devote ourselves to its pursuit. God forbid I should write myself a follower of that cold and repulsive school of which *cui bono* is the chilling motto; on the contrary, I certainly think that those who merely apply themselves to the study of science from motives of cupidity and avarice are unworthy to look upon the glorious things it will reveal. But it is also certain that the great end of science is practical good, and that it is only with reference to such an end that the mass of mankind has leisure to attend to it.

By this test let botany be tried. I need not point out to you that a science which explains the organic laws under which plants are permitted to live and grow, which teaches the manner in which they are influenced by the elements, or how they themselves act upon the earth and atmosphere that surround them, stands in the same relation to the vegetable as physiology to the animal kingdom. When we reflect how considerable a proportion of our food is derived from plants, how large a part of the riches of a country consists in the fruits of the earth, in corn, wine, and oil, dyeing and medicinal plants, timber; or in cattle, which are supported upon various vegetable productions; and when we consider that there is not a blade of grass which springs, nor a fruit which matures, not an ear of corn which ripens, except under the dominion of the laws which botany will teach you; and especially if we remember that there is not one of these productions, the quantity of which may not be increased, or the quality improved, or the very properties modified by artificial means, and that those means can only be furnished by the botanist,—it must be sufficiently obvious how important must that science be, which is connected with matters of such vital consequence, and which leads to such results. Accident, it is true, and blind experiment, and unconquerable perseverance, have conducted the world, in the course of some thousand years, without the aid of science, to a knowledge of many of the processes and facts by which the plants we consume may be multiplied and improved, and applied to human purposes; but through what fatal errors, what lamentable catastrophes, what ruinous destruction of property, has this not been effected! How many thousands of human beings must have perished before the effects of the commonest drugs were empirically ascertained! What incalculable loss of property must have taken place before the present modes of cultivation were discovered! What waste of wealth in colonial speculations might have been averted, had the truths of Botany and her sister sciences been earlier understood! and what a change have they for the last century been producing upon the whole face of the civilized world!

When we speak of agriculture, of horticulture, of arboriculture, or of other arts, upon which botany has a direct bearing, and over which this science exercises a silent, but not on that account a less efficient influence, we are apt to overlook the cause in the effects, and to ascribe to a mere advance in those arts, the improvements we witness, without considering that that advance must have had a cause, and that that cause can be only botany or chemistry, originally applied by some master-hands, and afterwards blindly followed by the community.

When the crops of the potato, the staple

food of Ireland, shall have been brought in that country to treble their present quantity, as they surely will be, and when every acre shall yield thrice as much as it now yields, the fact will be known to every one; but the original discoverers of the mode of effecting this most important improvement will probably be forgotten, except in the records of science; and the effect will be ascribed to the improved state of agriculture, without reflecting that it was brought about by a science of which the farmer had scarcely heard.

But if a knowledge of botany leads to consequences thus important, to what evils does not an ignorance of it also lead?

Charcoal is obtained for military purposes from the branches of certain trees; large plantations have been made at much expense to provide such branches. From observations I have made upon charcoal plantations in England, it is extremely doubtful whether more than one-third of the quantity that might be procured from a given space of ground is really obtained. Botany would teach the cultivators better.

Timber, again, is one of the most valuable parts of many estates. It is perfectly certain, that in many of the plantations of this country, enormous losses are sustained by the proprietors not knowing the exact conditions under which the greatest quantity of timber may be obtained in the smallest period of time. Trees are enabled to grow only by the action of light, air, and earth, and their timber will be improved or deteriorated in quality, and augmented or diminished in quantity, in proportion to such external agents exercising a favourable or unfavourable influence upon them. What such influences are, it is the proper province of the botanist to elucidate.

The oak, of all our forest trees, is the most valuable. By the ignorance of charlatans, and the counsels of persons of the *nominal* school of botany, the finest species of English oak has been almost extirpated, and another, of equal value it is true for timber, but of far slower growth and less majestic stature, has been allowed to usurp its place. When Cæsar invaded Britain, our oaks were indeed the monarchs of the forest. Trees were then common, from the solid trunks of which the aborigines fashioned canoes which measured thirty-five feet in length. Where are such trees now to be found? Our forefathers felled the choicest of them with that improvidence which is characteristic of semi-barbarous nations, and trusted to Providence for their replacement. Their descendants, when such trees became subjects of tradition, fancied they were chesnuts, and ignorantly endeavoured to supply their place by a species known in a wild state, only in more southern climates, of habits ill adapted to the rigours of our northern station; and by errors which it is impossible now to trace, but which botany might have prevented, the ancient lord of our forests became proscribed, and sentenced to general eradication, contrary to experience, contrary to fact, and, what is more to my present purpose, *contrary to theory*. The race, indeed, is still preserved, a scattered remnant yet inhabits the land, and, consequently, the error may be retrieved, as it surely will be; but what centuries must now elapse before the like of those which once existed shall be seen again! What losses will have been sustained before that period of their perfection returns!

Are not these instances, taken almost at random, sufficient to establish my case? Let us now turn to the consideration of botany, with reference to its bearing upon the interests of medical men.

I will not attempt to carry you through an investigation of the amount of exact knowledge possessed by the peripatetic philosophers; it is sufficient to know that their botanical science was more theoretical than practical, and that it was soon absorbed by the ignorance of the long dark ages which succeeded them.

The first tangible evidence that we have of a serious attempt to substitute experimental knowledge in botany for an empirical practice which would be perfectly ludicrous had it not led to so many melancholy consequences, was in the foundation of a garden for medicinal plants at Padua by the republic of Venice in 1533. This is the earliest indication of the existence of a suspicion that the hot, cold, and other imaginary qualities ascribed to plants, and the planetary influences said to control them, required re-examination; —or of a doubt of the truth of those statements which ascribed pulmonaria as a remedy for pulmonary complaints, because the white blotches on its leaves resemble an ulcerated lung; gromwell seeds for the gravel, because of their hard stony appearance;—or white dead nettle flowers for leucorrhœa, because of their whiteness. It must be confessed, however, that the establishment of the Paduan garden did little more than excite investigation, induce other governments to found similar institutions, and prove the opinion that was entertained of the importance of botany, notwithstanding the rubbish by which it was encumbered. Nor is it till comparatively recent times that the true method of applying botany to medical affairs, upon the fixed principles of science, has been generally recognised.

The adaptation of botany to medical pursuits is either direct or indirect,—either by way of illustration or by immediate application.

It is chiefly with regard to comparative anatomy and physiology that it is indirectly applicable. Embracing, as it does, the nature and the development of the lowest forms of organic tissue; affording excellent opportunities of studying the phenomena of life in beings whose structure is of the simplest kind, and whose want of locomotion prevents their escape from the eye of the observer; and presenting an admirable view of the motions of fluids in the ultimate cells of tissue, it is extremely well adapted to enlarge the views and to test the theories of the comparative anatomist and physiologist. It is naturally to be supposed, that as the two kingdoms of animals and plants start from one common point, where they are fused as it were into one, the first rays of divergence must be extremely similar, and all more remote rays must have a community of character which it cannot but be important for the physiologist to appreciate. For example, the singular mode of life of *filarias* is probably to be explained by that of the vegetable *monema*. Filaria is an animal belonging to the class entozoa, which burrows into the solid flesh of man, producing ulcers, and inflammation, and severe pain in the part affected. These creatures, which have occasionally been extracted from the human foot as much as an ell in length, and not more than half a line in diameter, consist of a simple tube, filled with inconceivable multitudes of excessively small, transparent worms, having a stiffish bristle-pointed tail, and a body marked by transverse lines, extremely like muscular striæ. In plants, the monema, in like manner, consists of a simple tube, or tubes, containing myriads of young ones, which are evacuated when the tube is injured.

The mode of generation in plants, our knowledge of which has now been brought to a state of very considerable accuracy, has been asserted by one of the most cautious of botanists, himself a medical man, to be more likely to throw additional light upon the general problem of generation, than any inquiry into the phenomena of the animal kingdom.

You must, however, be careful that you are not misled by men of lively imaginations, who will see analogies between animals and plants where no analogies really exist, and who draw false arguments from the vegetable kingdom to support their theories of animal phenomena. And in this point of view botany is eminently useful, as enabling you to distinguish error from truth in a subject which it is most important you should rightly comprehend; for perhaps there is no department of human knowledge in which it is more easy to indulge in vain and fanciful speculations, than in drawing analogies between the animal and vegetable kingdoms.

Take, for instance, the very recent work of BRACHET, upon the ganglionary nervous system, a book which I am the more disposed to criticize, because it gained from the French Institute the Monthyon prize in physiology in 1826. It appears from the author's statement, that about two-thirds of his published work was what was submitted to examination for that purpose, which possibly explains how the errors I am about to notice, escaped the criticism of the French academicians.

He assumes, that a nervous system and vitality are two terms expressive of the same idea; and, consequently, he infers that plants must have nerves. Rejecting, however, the fanciful notions of his countryman DUTROCHET on this subject, he sets up a theory of his own. He thinks that the nodes of plants are their ganglia, that the pith is the grand nervous seat, the medullary processes nervous branches, and the bark a plexus of nerves which reach to the very surface of the leaves, where it is their business to remind the absorbents of the presence of circumambient substances. And he proves his theory by what? By a series of experiments, instituted with a full knowledge of at least the principal phenomena of vegetation? Upon evidence of which we were before ignorant? Upon some discovery which is tangible and appreciable? Not at all. He is satisfied with a few experiments, injudiciously conceived, because their results could not possibly prove anything, and conducted without any due precaution; he misunderstands his results where he has obtained them; he leaves out of consideration a multitude of important circumstances, of which a botanist would not have been ignorant; he admits that his experiments are extremely incomplete, although he adds, "*sufficient for him*;" and upon a heterogeneous mass of false reasoning, mixed up with misconceptions of the commonest and best understood phenomena, he builds his theory of the existence of a system of nervous ganglia in plants as well as in animals! To show, even to those unacquainted with botany, the unsoundness of the speculations of this writer, it is sufficient to push his hypothesis to its genuine limits. If we do this, we shall find that plants, in which a nervous influence can scarcely be proved by the

most careful experiments, are beings, the nervous system of which is, in fact, more highly developed than in any other part of the organic world; for they must, in reality, if we believe M. Brachet's reasoning, consist of *nothing but nerves enveloping capillary vessels.*

Again, with regard to Raspail's "New System of Organic Chemistry," I would strongly advise you to make yourselves well acquainted with botany before you form any opinion upon the speculations of that singular, but, in many respects, ingenious work. That it contains much matter exceedingly well worth attention, I can scarcely doubt; but I must warn you, that your botany will show no inconsiderable part of what this extraordinary writer has advanced, to be purely hypothetical.

I have dwelt thus much upon the *general* considerations which connect botany with other sciences, because I was desirous of impressing upon your minds the fact that it bears upon many subjects of importance as well as upon those which *directly* concern the medical student. It is now time that I should explain to you what this part also is.

At one time, the world was contented with assigning certain medical properties to plants without inquiring whether some principle was not discoverable, by which the existence of such properties might be judged of *a priori*. In the absence of this principle, botany, as applied to medicine, was wholly empirical; it consisted in nothing more than a knowledge of certain supposed facts, which there were no means of generalizing. It was impossible for any individual to put every supposed remedy to the test of experience, and equally beyond his power, in the absence of a safe and recognised principle of guidance, to judge of what was active or inert, the books of medical botany long remained encumbered with the chimerical fancies of the dark ages, and filled with the names of plants, the properties of which were purely imaginary. Thus alisma plantago, so much vaunted as a specific in hydrophobia, belongs to a group of plants destitute of sensible properties, and is itself inert. The water lily, which has been reckoned a narcotic, belongs to a natural order in which no such principles can be found, and does not itself possess them; and the saponaria officinalis, once so much talked of in syphilis, would be at once pronounced, by a botanist, inactive, as it is now admitted to be.

Nor was this the only way in which the want of a guiding principle led to uncertainty and confusion. Well-known drugs are referred upon the reports of travellers to plants which did not produce them, and which botany, rightly applied, should have prevented men from believing to produce them. Thus myrrh was supposed to be yielded by an Arabian acacia, which furnishes no substance more aromatic than gum; catechu by a palm which has nothing more active than sago in its constitution; jalap by a mirabilis; benzoin by a terminalia and a croton; and storax by a styrax, identifications alike contrary to theory and fact. Besides this, there are many other ways in which Botany connects itself directly with medical duties. Everybody knows of what importance it is for a stranger, in a foreign climate, to be able to form some opinion of the properties of the plants which he meets with, and, at all events, to be able to distinguish poisonous kinds at first sight, although he should never have seen any one of the species of the country before. It is usually to medical men that one looks for advice upon the subject; and I need not mention how many inconveniences have been experienced in consequence of medical officers not being able to give such information. It will be sufficient to mention one recent case.

When Captain Belcher was on his survey of the west coast of Africa, in 1832, a number of bulbs were collected on Pullam Island, of which one of the crew, having a sore tongue, was so unfortunate as to taste. This man was deprived of his speech for half an hour. From the account given of the plant, it was obviously one of the poisonous amaryllideæ, which are common in equinoctial Africa; but it does not appear that the medical officers warned the sailors against their use, although from the want of vegetables which they had long experienced it was naturally to be expected that bulbs so very much like onions would be eaten by the crew. The surgeon of that ship would, in my opinion, have been morally responsible for any lives that might have been lost. If that man's tongue had not accidentally been sore, no warning would have been given, and a boat's crew might have miserably perished.

If, then, Botany will enable you to distinguish between error and truth, in judging of the sensible properties of plants, and if it will really enable you to determine, with considerable precision, the nature of the active principles contained in a species you have never before beheld; it is obviously a point of great interest to know in what way the science can be so applied. Given the external characters of a plant, to find its sensible properties, is a grand problem to solve; and one which it will be my business to demonstrate in future lectures.

At what time the suspicion first arose that the sensible properties of plants are indicated by their external form, and that botanical affinities are identical with medicinal analogies, is perhaps not now to be ascertained. Whether it originated in actual observation, or was the result of a theoretical view of the properties of organized matter, is equally uncertain. It is generally said to have originated with CAMERARIUS, a monk of Tubingen, in 1699. But the opinion is, doubtless, of much higher antiquity, and it may be, even, after all, nothing more than an emanation from that barbarous school which judged of the virtues of plants by their mere form, colour, or texture. I find it clearly enunciated in BAPTISTA PORTA'S Phytognomica, published in 1588. "Ex partium similitudine compares virtutes cognoscuntur," says this old botanist, who seems thus to have distinctly expressed the scientific application of botany to materia medica. He was followed from time to time by several German and other physicians, and among them by LINNÆUS, who, in his dissertation upon the properties of plants, expressly declares, "that species of the same genus possess similar virtues; that those of the same natural order are near each other in properties; and that those which belong to the same natural class have also some relation to each other in their sensible qualities." It must be confessed that this was giving the theory a wider application than facts will justify; but, still, the principle, though narrowed in its application, remains undisputed. As the opinions of writers of great names must necessarily be the guide of those who are only entering upon the study of a science, and who consequently can have no opinion of their own, I may add that the same view has been adopted by JUSSIEU, DECANDOLLE, and the younger RICHARD, in France; by VROLIK, CASSEL, and others in Germany; by BARTON in the United States; and especially by M. FEE, whom we must regard as one of the most distinguished of the continental writers on medicinal plants.

There has, in fact, been no opposition to it which deserves to be mentioned, since the middle of the last century. It is true that our own times have witnessed the singular instance of a man unacquainted with the first principles of botany, boldly arraigning the conclusions at which the most learned men of the two last centuries have unanimously arrived, asserting that the laws they have deduced from a laborious and skilful examination of all the facts which bear upon the subject, are a mere tissue of folly and absurdity and bringing again before the public the exploded notions of writers like PLATZ and GLEDITSCH. With such a person I do not feel called upon to enter into a discussion; in fact, there is no common ground between us on which an argument could be constructed. Before a botanist could condescend to reason with such men they must first learn botany. To apply to this case the language of a celebrated Cambridge professor when recently speaking upon another subject,—"it would, indeed, be a vain and idle task to engage in such a controversy, to waste one's breath in the forms of exact reasoning unfitted to the comprehension of our antagonist, to draw our weapons in a combat where victory could gain no honour. It is too much to call upon us to scatter our seed on a soil at once both barren and unreclaimed; it is folly to think that we can in the same hour be stubbing up the thorns and reaping the harvest. The position of such opponents is impregnable, while they remain within the fences of their ignorance, which is to them as a wall of brass; for (as was well said, if I remember right, by Bishop Warburton, of some bustling fanatics of his day), there is no weak side of common sense whereat we may attack them."

The arguments by which the coincidence of botanical affinity and medical properties is supported, have been admirably set forth by Prof. DECANDOLLE.

If we attempt to discover theoretically the origin of the various substances employed in the healing art, we shall mostly find their true source in chemical combinations. When the inquiry relates to medicaments the nature of which is well known, such as salts or acids, the influence of their chemical combination cannot be questioned, since the least change in the proportion of their constituent parts alters the nature of their effects. The same law is to be applied to medicaments of a more compound character, such as those we procure from the vegetable or animal kingdoms. All organic matter is ultimately reducible to a certain number of substances, the chemical composition of which is but little variable, and which, if obtained in a state of purity, uniformly retain their respective properties; thus starch is always nutritive, gum or mucilage always emollient, fixed oil always lubricating, and volatile oil stimulating and aromatic; and so on. Now it is evident that these different elements, mixed in different proportions, will form compounds having new properties, intermediate, perhaps, between those of the substances that form them. We may conceive, moreover, that if, in a great number of cases, we cannot clearly

explain the effects of compound medicaments, the impossibility is far less connected with the nature of things than with our own ignorance. But, independently of chemical action, all substances placed in contact with the human body, operate by simple mechanical effects, such as weight, bulk, the asperities or smoothness of the surface, the readiness with which they absorb or part with water, conduct or retain caloric, and so on. Hence, all the effects produced by medicines upon the human body must be referred either to their physical structure or to their chemical composition.

But does not the physical structure, or the chemical composition of a medicine, depend directly upon the organization of the plant which produces it? and especially of that class of organs which regulate nutrition? Everybody knows that plants growing in exactly the same soil, produce substances entirely different, while, on the contrary, plants of analogous character yield the very same substance, let the soil in which they grow be what it may. Without calling in question the powerful influence exercised by soil on vegetation, it is impossible to suppose that any thing short of inherent special power, in each species, of furnishing its own peculiar products, is the true cause of the diversity of vegetable substances, when we see that if, in the same pot, and the same soil, under a receiver which contains a due quantity of air, we sow side by side two seeds, the one of a yarron, the other of a nettle, the first will after a few days produce a couple of leaves riddled with glands containing essential oil, while the other will bear a number of tubercles filled with a caustic liquid. Is it possible to doubt the powerful influence of the structure of the organs of nutrition, when we see the different parts of a vegetable or an animal contain totally different products, all elaborated from the same sap, or the same chyle?

But it may be objected that if the different substances found in plants are owing to the peculiar action of the organs of nutrition, botanical classifications must also be founded upon the organs of nutrition, if structure and properties are to coincide; and that classifications founded, like those of botanists, upon the organs of fructification cannot harmonize with medicinal virtues. This objection is more specious than sound. In all departments of natural history our systems are of necessity founded upon those parts which present the greatest variety between species and species, and the greatest constancy between individual and individual. Now it matters not what function you take as the basis of a natural classification, for one will lead as well as another, to a natural result, provided we thoroughly understand it; functions are never isolated, but always modified and affected by other functions; and in truth no classification can be natural in which every system of organs or of functions is not in harmony. The study of natural affinities is nothing but the observation of the constancy, more or less great, of certain combinations of organs; and, following out that principle, the naturalist places side by side all those beings which possess the greatest number of identical or similar organs, and he separates those which have a smaller number in common; whence it results, that while the perfection of an artifical system consists in reducing the characters of classes to the smallest possible number of ideas, a natural arrangement is, on the other hand, the more perfect the greater the number of ideas connected with the characters of the classes.

Now, if it be demonstrated that a natural group of plants is an assemblage of species having the greatest number of relations in their organs of reproduction, does not sound theory lead us to infer that such a group would also have the greatest number of relations in their organs of nutrition? Look at animals—their classes are established upon the organs of nutrition, taking that term in its most general sense. Do not these classes correspond with the organs of generation? And in plants facts are equally in harmony with theory. The divisions of monocotyledons, dicotyledons, and acotyledons, characterized by the organs of reproduction, are the same as those of endogens, exogens, and acrogens, characterized by the organs of nutrition; and so to so great an extent in the natural orders into which the classes themselves are subdivided, that I doubt very much whether we shall not some day use the organs of nutrition, when they are better understood, in preference to those of reproduction.

But to set theory aside, let us see whether facts do not completely bear me out in the statement that the properties and organization of plants coincide. The beasts of the field acknowledge the truth of this axiom, in constantly rejecting certain classes of plants, and selecting others. Cattle never touch labiate plants, or those of the digitalis tribe; horses refuse cruciferous plants; cattle, horses, sheep, swine, and goats, avoid everything belonging to the nightshade tribe, while they devour with avidity grasses, leguminous and compound flowered plants. Insects furnish still better examples, for these creatures, although they do not always extend their

predilection to all the genera of a natural order, by no means confine themselves to a single species of plant; on the contrary, they always select kindred species, in which an identity, or at least a great analogy, of properties is found. The turnip-fly, for instance, will eat radishes as well as turnips; the *cynips rosæ*, any kind of rose, but nothing of any neighbouring genus; and in the south of Europe, the cantharides, when the ash is defoliated by their attack, transfer their ravages to the lilacs and the olives, all of which are plants of the same natural order. Examples of this sort might be given without end. Let us transfer our consideration to medical plants. It was once thought that Jesuit's bark was furnished by some one species of cinchona; it is now known to be the produce of many species, and that bark of analogous properties is yielded by many plants of the same natural order. Rhubarb was believed to be furnished by some one rheum; no one can now doubt that it is the produce of many distinct species; and our very docks, botanically allied to rhubarb in a close degree, are found to participate in its properties. It was ascertained that one of the kinds of ipecacuanha was furnished by a Brazilian violet; upon experimenting upon the violets of Europe, these roots were found to be emetic likewise. All malvaceous plants are emollient, all cruciferous plants antiscorbutic, all of the poppy tribe narcotic, all the gentian tribe febrifugal, all the euphorbia tribe acrid and purgative, all the ranunculus tribe caustic and dangerous.

Upon evidence of this kind, then, it would be useless to dwell at greater length. We will next consider what the value is of some plausible objections that may be made to the principle I have been endeavouring to explain. It is said that the *potato*, one of the most common articles of our own diet, and *cassava* an equally common food in South America, are produced by plants belonging to what are called poisonous families; but it is to be recollected that we only consume the amylaceous part of those plants, and there is no such thing known as poisonous fecula. The stems and the leaves of both the potato and cassava are unwholesome; the latter, in fact, dangerous. It may also happen that a poisonous principle is so concentrated in some species as to be strongly marked, and that in others it is so diluted as to produce no appreciable action; this is the case in the cow-tree of South America, as contrasted with the poisonous artocarpeæ of the East Indies; or a peculiar secretion, common to all the species of a natural order, may have certain properties which will be absent from all those parts in which the secretion is not formed; as in the poppy, the milky juice of which becomes opium, but whose seeds, in which no milky juice exists, are perfectly inert; or, as in the fig, the fruit of which when ripe is destitute of a juice which is highly poisonous in many species, and very perceptibly acrid in its own leaves.

The peculiar mode of action of particular medicines, when applied to different parts of the body, or, when taken in different doses, is another source of apparent exception to general rules; but this question belongs to materia medica.

To conclude this discussion, I need only add that in 150 natural orders examined by DECANDOLLE in 1816, three orders only were found at variance with these principles; that is to say, containing exceptions which could not then be satisfactorily accounted for, so that the probabilities were 147 to 3 in favour of these exceptions being one day removed.

Having thus explained in what way botany is most directly connected with medicine, my next object will be to initiate you into the manner of understanding what botanical affinities are, and of putting in practice that of which I have thus explained the theory. For this purpose I find it necessary to reject the system of classification once most popular in this country, for it leads to no result, is inapplicable to medical purposes, except empirically, has not even the merit of facility in practice to recommend it, and is wholly unworthy the present state of botanical knowledge.

In its room I shall explain to you the systematic principles which were first distinctly laid down by the immortal RAY, and which his countrymen have not only had the folly to neglect, but the ingratitude to forget so completely, that to this very hour they have not found out that the honour of founding the school of philosophical botany belongs to England, and not to France. (*Great Applause*)

COAL TAR AND WATER.—The discussion respecting the effect produced by the addition of water to coal-tar in a state of combustion also deserves to be noticed. Dr. Daubeny affirmed that the water increased the combustive powers of the tar: Professor Low, on the other hand, contended that there was a *deceptio visus* in the experiment. Dr. Dalton also asserted that there was an illusion; he declared that the water caused a greater elimination of light, but that it did not at all increase the heat.—*British Association.*

CLINICAL OBSERVATIONS

ON

VARIOUS DISEASES,

BY

MR. WARDROP.

ON DISORDERS OF THE RETINA

Occasioned by Derangement of the Alimentary Canal.

The sympathy which exists between the alimentary canal and various parts of the nervous system, more particularly the brain and organs of sense, has been long well known to pathologists. The effects of some kinds of food in producing violent headach, and the vomitings resulting from injuries of the brain, are sufficient proofs of a reciprocal consent between those organs. The senses of sight, hearing, and taste, are all particularly liable to be influenced by diseases of the stomach and bowels. How often do worms produce symptoms scarcely to be distinguished from a collection of water in the ventricles of the brain! They are attended by the same imperfections in the function of the brain, the same loss of voluntary motion, and imperfection in hearing or insensibility to light. Children afflicted with worms I have known to lose altogether their hearing, and recover it as soon as the disturbance in the bowels was removed, and it is not uncommon for those who are subject to violent headachs and vomitings of bile, to become perfectly blind during such attacks.

There is no class of diseases of the eye on which so little has been said as those affections of the retina which are caused by a derangement of one or more of the organs of digestion, and it is of great practical importance to discriminate such affections from those which I have already mentioned (last Vol.), wherein the nerve of vision is influenced by an unequal distribution of blood within the head, from changes in the action of the heart, as well as from those ocular spectra which are produced by a plethora or congestion of blood in the brain.

One of the most common affections of the retina, caused by a deranged state of the stomach and bowels, is a want of power to fix the eyes during an ordinary period of time on a minute object. When, for instance, the patient attempts to read a book, he does not proceed above a few lines before he finds a mistiness or cloudiness appearing over the object, and in a short time, usually but a few minutes, he is unable to read distinctly.

Besides the dimness in vision, there is often a peculiar feeling of oppression or weight about the eyelids, so that they are opened with difficulty. The surface of the eyeball also feels unusually, and sometimes even painfully, dry; at other times, when viewing a small object, there is an increased flow of tears. The feeling of weight and oppression is not generally confined to the eyes, but affects the head, and is often much increased if the head be inclined downwards.

When these symptoms arise from a deranged state of the digestive organs, the true character of the disease is also pointed out by a furred appearance of the tongue, a disagreeable taste in the mouth (more especially in the morning), a sense of oppression in the region of the stomach after meals, occasional headachs, acidity, and, above all, an irregular state of the alvine evacuations.

There are also other phenomena occasionally observed in these affections of the retina, which arise from disease in the *primæ viæ*. Sometimes, for example, bodies of curious forms appear to float before the sight, or a temporary cloud comes over one or both eyes. In such cases, the *muscæ volitantes*, as they are called, present a variety of appearances. Some patients have a small body moving before them, as the eye moves, which appear always to be at the same distance. In other cases there are a number of small particles, like dust, moving in various directions before the eyes. In one lady, a cloud seemed gradually to pass over the pupil, so as to diminish the sphere of vision by degrees, and which she compared to the appearance of a half-moon. Indeed, the figures described by those who are similarly affected, are so various, that it would be impossible to give a particular description of the whole of them.

Treatment.—The necessity of employing purgatives in diseases of the chylopoietic viscera, has been pointed out by many writers as a matter of great importance; and I may observe that there is no department of medicine which has lately derived more essential benefit than the treatment of diseases of the alimentary canal.

Purgatives have been given for two distinct purposes, the one to evacuate any feculent matter which may have been collected in preternatural quantity,—the other to increase the various secretions in the alimentary canal.

Although to accomplish both these purposes, purgatives have long been very generally employed, it was not until Dr.

HAMILTON published his valuable observations "On the Use of Purgative Medicines," that practitioners were aware of the extent to which this practice might be carried, or of its beneficial effects in the treatment of several diseases which even had been considered incurable.

These remarks apply to affections of the retina arising from or connected with a disordered state of the stomach and bowels; for in such affections the advantages to be derived from a well-directed course of purgative medicines I have seen confirmed in a variety of cases.

Whenever in these affections of the retina there is reason to suspect, from the symptoms which I have enumerated, that a preternatural collection of feculent matter exists in the alimentary canal, it will generally be found that the certain way of removing such an accumulation is by the frequent and long-continued exhibition of those purgatives which act chiefly on the large intestines. The more drastic purgatives, even when given in large doses, never have the desired effect; they commonly operate quickly, but instead of bringing away the matter accumulated in the large bowels, they merely increase the secretion of mucus from the surface of the small intestines, as well as some of the other secretions. The medicine which I have found to answer best is *aloes*, in the form of a pill.* The operation of this medicine seldom fails to bring away, in one, two, or three days, a large quantity of feculent matter, and if it irritate the bowels it may be combined with a small quantity of the extract of hyoscyamus.

Most patients may safely begin by taking two aloetic pills for a dose, repeating them every four, six, or eight hours; for it is a certain though inexplicable circumstance, that small doses of aloes are much more apt to irritate the bowels than large doses of that medicine. In cases requiring this system of treatment, the aloetic pills seldom begin to operate until ten, or twelve, or a considerable number, have been taken, and they should afterwards be continued in such quantities as will produce three or four plentiful evacuations every twenty-four hours.

Sometimes the aloetic pill causes uneasiness without operating sufficiently, or producing sufficiently copious evacuations. In such cases they ought to be given in conjunction with other laxatives. Jalap and calomel, castor oil, or senna, will commonly answer the purpose, and a dose of one or other of these purgative medicines may be repeated every second or third day, the aloetic pill being continued during the intermediate periods.

The extent and duration of a course of purgatives must depend not only on the effect which they produce on the affection of the eyes and the system generally, but also on the quantity and quality of the evacuations; for as long as there is a preternatural quantity of feculent matter, and, more especially, as long as it is fetid, discoloured, and ill-formed, the purgative course should be continued.

There are some cases where, after a very active course of purgatives, continued even for several weeks, the quality of the evacuations has undergone but little improvement, and the quantity of the discharge appears astonishing. In such patients it is impossible to conceive that the whole matter had accumulated in the abdomen for any length of time. It is more reasonable to suppose that it had been daily produced by an increased secretion from some of the chylopoietic viscera. Under the circumstances to which I have alluded, it is prudent to intermit the purgatives, and merely to keep the bowels moderately open; and as there is often reason to suspect that the function of the liver is, in such cases, deranged, repeated doses of calomel, or an alterative course of mercury, will often be found very beneficial.

After the bowels have been freely evacuated by aloetic and other purgatives, little remains to be done, but to attend carefully to keeping them regular, which may generally be accomplished by continuing small doses of aloes, rhubarb, or some mild laxative. When the stomach remains feeble, great advantage will be derived from columba or some other bitter infusion, taken two or three times a day; and if the food be apt to create acidity, the columba, combined with magnesia or soda, may be taken immediately before or after each meal.

I ought also to notice, that in some affections of the retina, like those which I have now described, the stomach appears to be the organ chiefly affected, and when this is suspected, from the state of the tongue or the presence of headach, an emetic may be given with much advantage previous to a course of purgatives.

In affections of the retina, arising from derangement of the digestive organs, little good can be expected from *local* applications, and nothing should be applied to the eyes until the deranged state of the primæ viæ is relieved. Should the eyes.

* The following is the formula I have long been in the habit of employing:—

℞ *Ext. Aloes*, gr. ii;
Ext. Gentianæ,
Saponi Hispan, aa. gr. i. M. ft. pilul.

owever, after that has been accomplished, remain weak, irritable, and incapable of exertion, advantage may then be derived from a judicious application of stimulants, such as the vapour of the water of ammonia or ether, or the application of blisters behind the ears, and on the nape of the neck.

OPERATION OF

SYMPHYSEOTOMY,

Performed by Professor PETRUNI, *Naples*.

M. VERDEROSA, twenty-four years of age, rachitic, and of a diminutive stature, wishing to marry, was conducted by her parents to M. Galbiati, in order to ascertain whether the size of the pelvis permitted her to run the chance of becoming a mother without risk. She was accordingly examined, and the measure of a line extending from the mons veneris to the superior spine of the sacrum gave five inches and a quarter; the surgeon therefore advised her not to marry, but his recommendations were neglected, and the woman soon became pregnant. After a period of nine months, she commenced, on the 31st of May, to feel the first labour pains, at six o'clock in the evening, and at two the following day the membranes were ruptured; the pains now relaxed a little, as is usual, and then returned, but the neck of the uterus did not dilate, and the head of the child was stopped at the inlet of the pelvis, which was too narrow to permit its descent. The midwife now called up M. Galbiati, who sent for me.

Our first care was to endeavour, by every possible means, to determine the several diameters of the pelvis, which were found to be as contracted as before marriage. It now remained to decide on our conduct. Should we wait a little longer, although the waters had come away for ten hours, the pains were violent, and the head was arrested at the superior orifice? But what chance was there of the case terminating successfully, with a child at full term, and a sacro-pubic diameter of two inches and a quarter? Hence, regarding the time which had elapsed, and the excessive smallness of the pelvis, we decided upon an operation. But as to the choice of the peculiar operation which was applicable, the cæsarean had always caused the death of the mother when practised amongst us, whereas symphyseotomy presented many chances of saving both mother and child. Besides, in the case before us, symphyseotomy was capable of increasing the antero-posterior diameter by one inch and a half to two inches and a quarter, and would therefore give us a superior diameter of three inches and three quarters, which is sufficient for a natural labour. I therefore performed the operation, and in a few minutes, although the symphysis was somewhat deviated; but I took for my guide the softness of the fibro-cartilage. The completion of the section was announced by a loud sound, which clearly indicated the degree of distention in which the inlet of the pelvis was placed. The labour was now abandoned to the force of nature, as we had agreed upon; the thighs were merely supported, and it required a separation at the symphysis pubis of two inches, before the head began to descend into the superior aperture. The interval was greater towards the right side than to the left, whence the passage was there more free. The head acted as a wedge, dilating the pelvis, and forced on by the uterus. After some pains, determined by a single dose of the secale cornutum, we perceived the head of the child descend into the pelvis, presenting its occiput completely engaged in the interval of the symphysis. At the end of an hour, the labour terminated in the first position, and a child was born in a state of asphyxia, from which it was soon recovered; the child has continued to do well; the head appeared elongated, and had therefore undergone some reduction, but not more considerable than in a natural labour when it is protracted. Its circumference was thirteen inches, its greater diameter five, and the biparietal diameter, measured the next day, gave three inches and some lines. The incision made through the pelvis and soft parts gave discharge to a very small quantity of blood; the lochia appeared as usual, and a bandage with buckles was fixed round the patient's pelvis. With common dressing the wound was completely cicatrized in thirty-five days.—*Il Filaitre-Sebezio.*

CURIOUS CASE OF

IRREGULAR LOCOMOTION

CONSEQUENT ON

CEREBRAL INJURY.

In a late number of the *Filaitre-Sebezio* we find the following curious case of irregular locomotion resulting from an injury to the brain. Our readers cannot have forgotten the experiments of Magendie and Rolando, from which it would seem to follow that there exist four different impulsions

in different points of the brain, viz., in the cerebellum, the corpora striata, and on either side in the two crura cerebri. Thus when the upper part of the medulla oblongata, or back of the cerebellum, was wounded in birds, they exhibited the curious phenomenon of endeavouring to fly backwards; if the corpora striata were removed or injured, forward motion in a direct line was the consequence. It will be curious to see how far these experiments, made upon animals, are confirmed by the autopsy of the case which we proceed to describe.

Case.—C. Viola, 26 years of age, of a sanguineous and very excitable temperament, had given himself up from a very early period to the pleasures of the table, and to wine in particular. At the age of 11 years he was attacked by convulsions, which came on suddenly, either during sleep or while he was awake, and were announced by violent cries and the suspension of the senses. During the fit, the patient commenced to run forwards with rapidity, neither turning to the right or to the left, without falling, or being arrested by any obstacle that was not very difficult to be surmounted. It frequently happened that he was seized with the fit while going up-stairs, when he commenced to mount with rapidity, but always in a right line. When arrested by no impediment, he continued this pace for a few seconds, and finished after having gone twenty or thirty paces. He now stopped and recovered his senses; his face appeared more animated than usual, and his eyes sparkled, but the intellect remained stupified and confused; there was no memory of what had taken place; he merely remembered to have felt, before the attack of convulsion, an *aura*, a sensation of vapour mounting from the feet to the head along the vertebral column, and terminating in the annihilation of consciousness. These fits continued, with irregular intervals, during seven years, returning once or twice a-day: after that period they assumed somewhat of another form. Instead of the forward course the patient threw himself on the ground, and commenced to roll himself in one direction for ten or twelve paces length, during which sensation was suspended. The constant and regular propensity to roll in one given direction, ceased with the access and the recovery of the intellect. When thus attacked he did not cry out as before, but expressed himself in a prolonged kind of howl. Finally, two years ago, the convulsions became more prolonged and frequent, and again changed their form. The rotatory movement ceased, and gave place to the most bizarre distortions; at present it is rare that a day passes without a fit, and he has often as many as three or four. It is important to remark, that even during the intervals of the fit, the patient's physical and moral condition is much altered, and he is a prey to many nervous accidents. During sleep he is tormented by frequent subsultus tendinum; he also feels a pricking in the spine, accompanied with a kind of shriek. He is taciturn, sombre, and irascible, and his mind is confused by fantastic ideas. The affection has been rebellious to every kind of treatment, and the physician now contents himself with being a simple spectator of the disease.

THE LANCET.

London, Saturday, Oct. 11, 1834.

THE luxury of a new abuse we lately thought to be an impossible indulgence on the part of the Irish College of Surgeons, thoughtlessly imagining that if the school of that institution even wished it, the example of the voluptuary who offered a reward for some novelty in the exhausted field of physical pleasure must be imitated. But the corporation have beaten the voluptuary, have drained to the lees the cup of official delinquency, and in the "lowest deep a lower deep" yet found. A verge does not limit them. When at the end, they can still go a step farther. The College school proves to be a notable exception to those general laws which, in explaining the physiology of similar bodies, enable us to predict the limits of their criminality from previous observation of their capabilities in crime. In this school, satiety plainly provokes esuriency, and enjoyment merely excites ingenuity to produce other means of degrading fruition. Its criminal career incessantly develops new opportunities of guilty revelry, which are seized with the utmost indifference to results, and the most perfect contempt for

character. The vicious imprudence, however, painful and disgusting as it is, happily indicates that the state of the system is too morbid and violent tobe of long duration.

The class of individuals calling themselves, or called by others, "grinders," the mushroom offspring of the hotbed of medical corporate corruption, have long been a proverbial sarcasm on the profession, and would be, were the rank heap whence they have sprung less vile, the greatest opprobrium of medical education. But like has only been begot by *like*. "Grinders" are the natural children of medical corporate examiners, though they were never boldly and shamelessly acknowledged to be the offspring of such a parent. "Grinders" and "grinding" were at least disavowed to be art and part of medical education. But the wall of separation is at last thrown down, and the national school of surgery in Ireland, and the Dublin "grinders," have rushed to each other's embrace. The profligate school, and the unworthy and inefficient plaster house of refuge for indolent students and pupils flying from negligent professors, now stand on the same plane, without a brick between them.

It is well known that the school of surgery in Ireland was one of the last institutions to abandon the servile system of apprenticeship, and that it still encourages it in every manner and by every inducement in its power. But instead of censuring, or devising the means of entirely suppressing by an improved plan of education, a practice which imposes on the student the third item in the long and diversified scale of his expenses, this national school has just done its utmost for the perpetuation of the traffic, by taking into its dissecting rooms as table-talkers, or some office of that kind, two of the most notorious grinders in Dublin. Before, however, this obscure reinforcement was made to the school, there were already three demonstrators, so that were we not conversant with the complex motives and movements of this establishment, we might imagine that the recent appointments were made for the exclusive purpose of throwing a little of the spare dignity of the "royal arms" in Stephen's Green over the lowliness of "grinding" and of "grinders."

But the seeming compliment thus paid to the craft, was merely subsidiary to the attainment of ulterior and still more important objects. In dragging Mr. West with him through the breach which Mr. Kirby made in the constitution of the College, he burdened the institution with an incumbent the brilliancy of whose talents was not likely to dissipate the clouds which surrounded his own passage into place; or to reconcile to the school itself a person whose presence was a memento of its own perfidiousness, as well as of the illegality of those impure intrigues to which he was indebted for an official existence. It was, therefore, resolved to pluck, if possible, this thorn out of the tender conscience of the school, and to place Mr. West in circumstances less favourable for reviving the recollection of violated vows. But how was this to be achieved consistently with the promises which formed a part of his illegitimate promotion? How was the repose of Dr. Jacob to be secured without the sacrifice of the interests of Mr. West? How was the spectre to be charmed from the pillow of the former without inclusion of the latter among the devoted accessories to the spell? Which party blushes not while we unveil the workings of this memorable specimen of scholastic necromancy? The influence of distance upon the distinctness of objects in perspective is well known. On this principle, doubtless, was it that the scene of action was laid in the distant corner of an Irish province, whence an old man was brought

to Dublin, there was "ground," passed through the portals of the College, and sent back to be installed in another situation, while Mr. WEST was destined to fill that from which the other was removed! Thus, by a dextrous chess-like move on the ill-fated board of patronage over which the College school so long has exercised a fatal ascendancy, Mr. WEST is removed to a remote dispensary, out of the aching site of the College, and two worthy successors are provided for by his exile!

The disposal of Mr. WEST, however, was not the last object sought to be accomplished in this plot. In selecting the two "grinders" who have succeeded him in office, the College school only acts in conformity with its long and declared hostility to private establishments. Its professors were aware that the persons whom they should "honour" with their notice, would be likely to make themselves acquainted with many students arriving in the city for the winter, in order to exact what was possible from their fears, and then, as a duty of gratitude, direct them to expend what spare cash they had, in Stephen's Green. In short, the final purpose of this superfluity of demonstration at the College was, to secure a pair of crimp-sergeants who would procure recruits during the ensuing campaign, —who would demonstrate the road to the school,—not the points of anatomy.

The whole transaction usefully displays the manner in which the school of Dublin bestows its patronage within its own walls, and manages affairs with its long arms in the remotest parts of the island. The students of the Irish metropolis may thus learn also the new provision which has been made for their instruction during the next session. Some supernumerary demonstrators have been selected from the refuse of Park-street, and the windfalls of the "grinding" room.

Lectures on the Ordinary Agents of Life, as applicable to Therapeutics and Hygeine; or the Uses of the Atmosphere, Habitations, Baths, Clothing, Climate, Exercise, Foods, Drinks, &c., in the Treatment and Prevention of Disease. By ALEX. KILGOUR, M.D., M.R.C.S.L. Edinburgh, A. and C. Black, 1834. pp. 359.

HERE is a great deal more writing than will be read by the public. The style of the author is so fluent,—so little care has been taken to prune the language in which his thoughts originally found vent,—there is so much in the volume which everybody knows already, and there is so much said upon subjects on which the very instinct of man will lead him to form a correct judgment without a word of admonition from any adviser, that we cannot promise the author all he would like, nor the public exactly what they want, on the present occasion. We cordially agree with the writer, that the Government ought to legislate for the public health. It is at present a subject of scandalous neglect. But it is useless to address the public on the majority of the topics which occupy the pages of this volume. The author repudiates "popular" treatises it is true, but whom does he think to instruct at this time of day by long lectures on atmosphere, caloric, effluvia, electricity, irrigation, cultivation, habitation, police, habitual bathing, furs, silks, wools, climates, wines, &c.? Not the members of the profession we presume, and as for the great bulk of the population, why they have no will of their own in these matters, whatever their impressions thereon may be. Dr. Kilgour is a great reader, and a sensible man. He has collected materials assiduously, arranged them judiciously, and spoken candidly, but we fear he has taken a great deal of pains to very little purpose. There are some points which the Legislature only can enforce. After that, wealth enough to procure comforts, moderation enough to curb the appetite, and occupation enough to keep away the vapours, are the only things to be anxious about, in order to secure health to the

nation. Advice on the quantities, qualities, and times of taking food, is wanted badly enough, and a good practical essay on the subject of diet, founded on experiments, and general in its application, is yet a desideratum. Of all hygeinic matters diet has been the most neglected as a subject of experiment. On no point are medical men more divided, yet on none are certainty and definite conclusions more attainable.

While we thus intimate, however, that we are not glad to see these lectures in print, we are unwilling to seem to depreciate the talents of Dr. Kilgour as an author. He has produced a melange which will prove interesting and amusing to those who have plenty of time to spend in the library, and useful to such as are ignorant of some very common-place, and some not very well-appreciated facts. The public has a large maw for treatises on things pertaining to the body and the belly,—the outward and the inward man,—and those who are fond of reading about the "ordinary agents of life" as well as enjoying them, will not find the present lectures thereon a dear volume.

Observations on Functional Affections of the Spinal Chord and Ganglionic System of Nerves, in which their Identity with Sympathetic, Nervous, and Irritative Diseases is illustrated. By W. GRIFFIN, M.D., Physician to the Limerick County Infirmary, and DANIEL GRIFFIN, M.R.C.S.L. London: Burgess and Hill, 1834. 8vo. pp. 247.

We are at a loss to know what affections of the spinal chord are not functional. To what shelf can we turn for some "Observations" on the *other* affections of that portion of the body? One does not suspect having met with a very scientific work in the book which bears such a title; nor is our hope of its qualities raised at finding that after much investigation of the diseases of the spinal chord, the authors announce their inability to explain the term "irritation" as applied to express a morbid state of that part or any other part of the body, excepting in these words:—

"We mean simply to express by it any stimulus acting on the whole or parts of the system, through the sensorium, without primary or vascular excitement; and it would appear very probable, even in those diseases which apparently originate in vascular excitement as in inflammations, that the increased action of the vessels is not the first step in the process, but that a certain action or impression, as in the diseases of simple irritation, previously takes place in the sensorium?"

We could wish, at any rate, that if writers will not tell us what "irritation" means, they would settle the meaning of the word "disease." Which, for instance, of the facts adverted to in the foregoing passage must be regarded as the disease,—the stimulus (that is the irritation), or the vascular excitement, or the pain, discomfort, and disablement, experienced by the patient? This is not a captious question. Its solution is important to the clear comprehension not only of the subject under consideration, but all others in which medical treatment is concerned.

Frequent opportunities being enjoyed of searching for morbid appearances, one is on all occasions mortified at finding the disarrangement of the healthy vital actions assigned to an effect which the eye will not permit the pen to describe in definite terms, and our vexation is not a whit allayed by such apologies as the following for the deficiency:—

"In this age of investigation (page vii of the volume before us), when it is expected that all information should be conveyed in clear and perspicuous terms, perhaps the use of the word *irritation* may be considered very questionable. It has been commented on by medical writers as obscure, conveying no precise idea of any diseased state—a relic of the old love of mystifying, retained merely for the purpose of concealing our ignorance: but, surely, as long as it serves to make us acquainted with a peculiar class of complaints, however ignorant we may be of their pathology, *it answers all the purposes for which it is intended.* Neither can we comprehend how matters would be mended, or the medical art advantaged, by considering these complaints as modifications of inflammation, or attaching characters to them which are wholly unwarranted by any researches which have been made in

their morbid anatomy. We are, nevertheless, ready to confess, that the term irritation is one which, in an obscure science, we are constrained to use."

No one demands that *unwarranted* characters *should* be attached to these or any other complaints; but are microscopic glasses to be used by every man of science but the pathologist?

The unsteady use of the word disease is remarkably annoying in medical works, and exceedingly detrimental to the language of science. We have, a page or two on in the present work, another instance of the obscurity surrounding its application. The authors speak of "spinal tenderness" as an almost invariable attendant on the "diseases of irritation." Which is the disease in such a case? Is the tenderness the disease of the patient, or the irritation? Or does the disease consist of the symptoms produced by the tenderness and the irritation united? Or is there some disease which is the cause of the tenderness or the irritation? Of all definitions in medicine this one paramountly wants settling, which or what is *the disease* in a sick man, the symptoms, or the change in structure? Change in function we do not name, for we admit no derangement of function without change of structure, temporary or permanent. Moreover, the changes of function are the symptoms. Writers refer to either indiscriminately. How mischievous to science!

A glance at the preface has excited these remarks. We have also examined the contents of the volume, and shall recur to it again; for we entertain a feeling respecting the subject of it, which is very much in unison with that under which the authors dictated the following sentence:—

"Were we write from the rising to the going down of the sun, we could not sufficiently express our sense of the importance of the study of this subject as it relates to cases of mock inflammations,—of the facility with which it has enabled us to detect them,—and, finally, of the advantage it has frequently given us, in practice, over men who were at least our equals in information, and immeasurably beyond us in experience."

INTERCEPTED LETTER.

[THE PATIENTS.—COLLEGE AND HOSPITAL MATTERS.]

"Dear Sir Henry,—I read several passages of your last letter at the meeting of the College, and if the evidence of a true interest in your earthly happiness can afford you solace, you must derive great comfort from the result of their perusal, for the sympathetic feelings of the highest grade of your professional brethren were expressed on that occasion. They, to a man, seem assured that however gloomy their present prospects, and however distressing it may be for them to witness the disjointing of the legitimate machinery of the profession, *you* have done *your* duty; nay, more than your duty. You may in the estimation of some, have exhibited some discrepancies, and perhaps a few unnecessary confessions in your examination before the Committee, but still we are all aware that they did not proceed from any want of that high moral feeling which you have so justly declared to be the attribute solely of the Fellows of our College. We sincerely hope that your *sejour* in Leicestershire will renovate your drooping spirits. If it be any consolation to you, know that you may rely upon us in the great cause of high moral feeling, as opposed to the vain, worldly, often mean, and frequently disgusting, pursuits of medical science.

"I am using increasing efforts to keep your patients in good humour, but you must give me at least two days' notice of the muster in Curzon Street. Several new cases I could not keep, but most of the old ones are going on well. I cannot manage Lady Star's stomach properly. I have urged her to adopt the system of eating which you recommended, and she accordingly dined yesterday on a boiled whiting smartened with cayenne pepper, but no butter.—The Countess *will* eat suppers, so I have advised her also to follow your advice, and take a teaspoonful of the carbonate of magnesia in a tumbler of warm milk every morning.—The old General complains of incessant thirst, and I have, therefore recommended him to drink *king's cup*, and have given him directions for making it according to your excellent receipt.—Sir Peter sent to me to examine a small boil on his cheek (the *furunculus* of Cullen), the *appearance* of which annoys him. I *of course* gave him a prescription, but as it is a surgical case who shall I recommend, for if he should get into the hands of Sir Astley, the baronet or his assistant would, I fear, take the en-

tire charge of him?—The Marquis of L—— has followed your excellent advice, and eats his anchovy toast every morning with the best effects.—The Honble. and beautiful Mrs. Bride has been falling off ever since her marriage. I particularly wish *you* to see her, as it requires the nicest management to explain to a young wife and an equally young husband the true cause of the feebleness of a newly-wedded lady.—I would, dear Sir HENRY, that I could supply your place at Kensington, but your distinguished powers and endearing manner render it impossible for me to do what is necessary in that quarter.

"I have no particular College news to communicate, but we must soon be thinking how to get respectable visitors for the winter evening meetings. Would it do to invite WARBURTON, and introduce him to some bishops? It might be a good opportunity of reforming him.

"You must have seen in THE LANCET the turmoil at St. George's. WILSON'S radical propensities must be checked in the bud. Sir BENJAMIN is not idle. It is perfectly true that he is starting a school to oppose WILSON and his coadjutor, though it cannot be very profitable to teach in the neighbourhood of a hospital which is so remarkably *local* as St. George's, for I understand that none ever think of entering there but the chemists and druggists' apprentices who live in the purlieus. I believe they have no pupils at all this season. MACLEOD made a sad mistake in our journal this week about THE LANCET. He said that THE LANCET does not recommend St. George's because the hospital did not advertise on its cover this season. Now GREGORY (the tall handsome GREGORY I mean, who has a spite against MACLEOD) went down to THE LANCET office the other day, being interested in the St. George's matters, to fish out if he could, whether MACLEOD had not told another fib in this respect, and he declares everywhere that he has ascertained it to be a fact that the Editor did not know but what the St. George's people had advertised in his journal every week for a month.

"Mr. GUTHRIE and Mr. PETTIGREW have just called with a complaint against MACLEOD. I referred them to RODERICK himself, but they said they thought it was best to come to head quarters at once. I refused to enter into the particulars of their errand, but the butler gathered from GUTHRIE'S coachman that the two surgeons had come to complain of the personality of the following passage in the Gazette, which they say is '*a scandalous attack of a* DIRTY RIVAL.' RODERICK, I understand, defends the remarks by saying that the St. George's School will feel the Westminster and Charing-Cross Hospital Schools very much, and that it is only justice to his own interests to cry down BURNE and SHEARMAN. I assured them that you would not for a moment defend any thing that was ungentlemanly in the hack. HOWSHIP was in PETTIGREW'S carriage. MACLEOD says of the schools:—

"'There are certain establishments—one or two at least—which endeavour to attract notice by assuming sounding titles to which they have no right, and making promises which they know are not worth a farthing. It is painful to have to advert to such conduct on the part of any metropolitan body—but the facts are glaring, and especially worthy of exposure, for the sake of those young persons and their friends who may have newly arrived in town, and are liable to be caught by puffing advertisements. All who are more at home in the metropolis, and can see through the trick, look at it with a smile, not, however, unmingled with some indignation, for there is dishonesty on the very face of it. A misnomer adopted for selfish purposes in one place, is just as knavish as the holding out, in another quarter, the empty lure of a diploma; they are both "springes to catch woodcocks." Our best advice to students is to beware of these industrious bird-catchers.'

"I have heard, but only by a side-wind, that an offer has been made to purchase our College Hall for a clubhouse! Of course such a fate is not reserved for it, but, at any rate, it shows what people expect will happen to us when such offers are made. We must carry our heads very high everywhere to stop these rumours. MACMICHAEL tells me that all the evidence before the Committee is to be published. This would do us considerable harm. I advised him to try to get your examination revised, and have some of the *noes* turned into *yeses*, and some of the *yeses* into *noes*. There certainly are parts that should be altered if it is likely to go into every man's hands, which, according to MACMICHAEL'S account, it is sure to do.

"This letter shall go by the post, as I can't send the periodicals until after the office is closed. Your faithful assistant,

"T.

"Curzon Street, Mayfair,
"Oct. 3, 1834."

P.S. I have just heard a rumour of a most awful affair in the Borough, where one of the "operators," in an attempt to place a ligature on the femoral artery, for popliteal aneurysm, as I think the surgeons call it, cut a little awry, divided a

small arterial branch, saw the blood jet forth, and instantly fell in a swoon. Mr. TRAVERS was at hand, seized the instruments, and finished the operation, while the dead surgeon was carried out. Alack!"

CHRIST'S HOSPITAL.

To the Editor of THE LANCET.

SIR,—I am rejoiced to see that you have not closed your columns against the reformers of Christ's Hospital; although the *Times* has done so with their columns, prompted, it is thought, by some feelings of friendship. In your Journal of the 5th of August you seem "almost inclined to give credence to reports of any act of folly that may be imputed to the managers of that institution." I have just learned one act which appears to be marked with folly on their part, and indelicacy on that of their surgeon, Mr. Lloyd. A governor, well conversant in the management of the hospital, tells me that in the beginning of 1830, at *the suggestion of Mr. L.*, an order was made, that no child who should be taken home to be cured of ringworm by its friends (very naturally tired with the length of time the child may have suffered) should be again received without Mr. Lloyd's certificate that he was cured; nor any child received on a presentation without a like certificate. I would ask ought a professional man to place himself in such a position that every opinion he may give will bring him under suspicion of acting from one of the following motives,—either from a desire to rid himself of patients whom he cannot cure, or from the mercenary view of keeping out those children whose parents must fee him as long as the children were under his care?

In the same number of THE LANCET you hint that the managers have taken legal advice as to how far they are responsible to any of the established tribunals of the country. Permit me to ask you what would be the best steps to be taken to learn why the management of this hospital is not placed on the same footing as those of Bridewell, Bethlem, and St. Bartholomew's? These, I am told, change their managers every year, print their accounts, and have a book of printed rules; whereas those of Christ's Hospital keep all their affairs private, and elect themselves for life. They pretend to act under an agreement with the Court of Aldermen, confirmed by an Act of Parliament; but I understand that when this was drawn up, the *management* of the hospital was never mooted. If that be the case, by what law do these gentlemen take it on themselves? I again request your advice as to how they may be brought to book; by giving it you will oblige,

A CITIZEN AND GOVERNOR.

Sept. 24, 1834.

*** If the members of the managing Committee are acting under the sanction of an usurped authority, the body of Governors may obtain redress by applying to the Court of King's Bench for a mandamus. The Act of Parliament to which our correspondent refers, should be immediately examined. Probably that one document will determine the whole law of the question.—ED. L.

VENEREAL HOSPITAL, PARIS.

FUNGOUS EXCRESCENCE OF THE NECK OF THE UTERUS.—AMPUTATION OF THE NECK BY M. RICORD.—CURE.

CHARLOTTE MEUNIER, forty-two years of age, enjoyed perfectly good health up to the month of September 1832, when, without any assignable cause, she commenced to experience a sensation of weight in the hypogastric region. This sensation became more disagreeable every day, and about the month of January 1833, was succeeded by a sharp and constant pain running up to the loins, especially on the left side, and the hypogastrium was soon after occupied by a hard tumour sensible to pressure.

The least exercise now fatigued the patient; she was disgusted with every kind of food, and became gradually thin and weak. The menstrual discharge appeared regularly, but in small quantity, notwithstanding these accidents. The tumour in the abdomen increased from day to day, so that at the end of six months, the patient appeared as large as a woman at the full term. The left side, where there was most pain, was the most prominent. Meunier thought herself pregnant, and a midwife, who was consulted, had ordered every thing to be prepared for the accouchment, but this delusion was soon removed. The pains became excessively intense; a very abundant discharge of blood took place, at first in the interval of menstruation, and afterwards almost constantly. The patient's strength being almost exhausted, she came to Paris, and was received into an hospital, where she remained for seven or eight days, at the expiration of which she was discharged, and recommended to enter the "Hospi-

tal of Incurables," as being affected with a disease of the uterus which did not admit any remedy.

A physician, who saw her a few days afterwards, diagnosticated a fungus of the neck of the uterus, without explaining the nature of the disease in the abdomen, and prescribed hemlock pills, narcotic injections, &c., lavements of camphor and laudanum. After a continuation of this treatment for some time, he pronounced the disease incurable, and an operation impossible, and recommended a few palliative measures. These were employed during ten months, at the expiration of which the tumour of the abdomen had entirely disappeared; the hemorrhages also diminished, but the state of the neck remained unaltered, and the patient, exhausted, presented herself to M. Ricord, by whom she was received into the *Hopital du Midi* on the 15th of July, 1834; she then exhibited the following symptoms:—general health good; the face expressed the condition of a person weakened by a long malady, but without that straw yellow tint so characteristic of organic affections of the uterus; dull pain in the loins; hypogastrium a little sensible; no tumour sensible to the touch; the menses continue for a period of seven or eight days, and during their interval, a mucopurulent discharge takes place. The neck of the uterus was very large, and was received within the speculum with great difficulty; it was grayish, unequal, mamellated, fungous, friable, and bled with the greatest facility; the touch caused a good deal of pain, and gave rise to an abundant hemorrhage. On the right side of the neck, the disease seemed limited towards the insertions of the vagina, but on the left it ascended to the body of the organ, which was not, however, enlarged.

There also existed on the thighs, the arms and hands, an eruption of a doubtful nature. It presented the appearance of a lenticular, pustular, syphilitic eruption, running in many points into impetigo. It appeared four months ago without any known cause. The patient strongly denied having been diseased; however, mercurials were administered as a precautionary measure; after five weeks of treatment, the eruption disappeared, but as the disease of the uterus remained stationary, it was resolved to proceed to amputation.

Operation.—The patient being placed in the usual posture, a speculum (invented by M. Ricord, and called by him "porte ligature") was introduced into the vagina, armed with two strong double cords of silk, whose four extremities, united two by two, were passed on either side through a serre-nœud of Graefe, and tied to its moveable branch. As soon as the neck of the uterus was well embraced by the valves of the speculum, the ligatures were applied with the serre-nœuds, by turning the transverse branch at the inferior extremity: the neck was thus embraced by an anterior and a posterior chord, which were united on the sides by the serre-nœuds. The first attempt to execute this manœuvre was unsuccessful, but on the second the neck was perfectly seized, and drawn down towards the orifice of the vagina by slow and gentle tractions. As soon as ever it became apparent, a hook was fixed into the lip, then a second, a third, a fourth, and, finally, the hooked forceps of Muzeux. The neck was thus nearly drawn down to the orifice of the vulva; its free extremity was external, the portion joined to the body of the uterus concealed in the vagina. The hooks, collected into one bundle, were confided to an assistant; two assistants separated strongly the great labia, while a fourth protected the meatus urinarius, &c., with a spoon. The extirpation was now accomplished with a convex bistoury, directed on the left indicator, which explored all the parts destined to be cut, and removed the vagina, which continually pressed under the blade of the instrument. Although the extent of the disease, and the height to which it mounted rendered this part of the operation difficult, it was terminated in ten minutes. Two small indurated points which remained, were removed with a curved scissors. Blood was lost in abundance.

Progress of the Case.—The patient was immediately carried to bed, and passed an hour tranquilly. The hemorrhage diminished, but she was seized with a violent fainting fit, accompanied by vomiting, which lasted ten minutes. The tampon was now applied an inch above the vulva, and a calming draught given. Two fits of syncope again supervened in the day, but less violently. A slight discharge of blood took place through the plug, which was removed in the evening, but reapplied on account of the appearance of a fresh syncope. Pulse small, 112; headach; no abdominal pain.

On the 20th (second day after the operation) the patient passed a quiet night; the face was pale; the pulse still frequent; no nausea or pain in belly, but a little colic.

On the 28th and 29th, no fever; belly supple without colic; no stool yet; a lavement was ordered, and some broth.

On the 31st and following days, the simple lavement was replaced by one containing a purgative. The food was gradually increased, and after eight days the

patient was able to eat two cutlets. On the 3rd October the state of the organ was examined with the speculum. The neighbouring tissues had recovered somewhat of their natural appearance; the wound was much diminished, had commenced to throw out granulations, and was covered with a healthy suppuration. It was touched with the nitrate of silver, and some chloruret of soda (one-third to two-thirds of water) was injected.

On the fourteenth day the wound presented a red, healthy surface, and cicatrization was going on; the general health good. The patient walks about the ward. Cauterization with the nitrate of silver; injections of the solution of chlorine.

On the 22nd day the state of the parts was such, that it would be impossible to say whether the patient had been operated upon or not. The vagina having united with the remnant of the neck, simulated two lips, between which was the cicatrix of the wound, resembling an os tincæ, large and open. The neighbouring tissues were not in the least indurated.

On the 26th the patient was discharged perfectly cured, after having been examined by Dr. MARSHALL HALL, DIEFFENBACH, and several other surgeons.

The tumour removed was as large as a common-sized pear, and evidently fungous, but resembling strongly the raspberry syphilitic vegetation. In several points, however, there was lardaceous and scirrhous tissue, either softened or mixed with blood.—*Gazette des Hosp., Oct.* 4.

This is an example of the happy results which may extend extirpation of the neck of the uterus, when every other mode of treatment has failed, and when the patient is doomed to an inevitable death, unless the operation be performed without delay. In the present instance M. RICORD cannot be reproached with having removed the neck of the uterus upon insufficient grounds; any one moderately acquainted with diseases of that organ must here recognise a morbid alteration of structure, which is rebellious to all general and local treatment, and which would have quickly terminated the life of the patient. About fifteen months ago, M. RICORD operated for an affection of an analogous nature, and the patient is now alive, enjoying perfect health, without any symptom of a relapse. To any objections arising from the danger or difficulty of the operation, we may answer, that it ceases to be difficult when the uterus is drawn down to the external orifice, and that it is by no means an operation in itself accompanied by danger, for of 106 cases operated upon by M. LISFRANC, he has only lost six.

ST. GEORGE'S HOSPITAL.

TUMOUR OF THE LEFT HYPOCHONDRIUM.—ULCERATION OF THE CYST THROUGH THE COLON.

HARRIET COPELAND, a little girl, aged 9 years, was admitted on the 12th March, under the care of Mr. BRODIE. Previous to her admission she had been under the care of Mr. WALKER, the assistant-surgeon, who had recommended her friends to get her into the hospital. On examination there was discovered a tumour in the left hypochondrium, and apparently occupying the anterior surface of the spleen, of an elongated oblong shape, and passing downwards, outwards, and backwards, towards the spinal column. It was soft and elastic to the touch, and manipulation of the tumour gave her no pain. When she stood upright there was a fluctuation in the tumour, which was not quite so evident when she lay in the horizontal position.

The history that could be gained of the case was, that some months previously a village school-mistress struck her on the part with her fist, and knocked her down; and that at a more recent period (within some few weeks) she struck the same part against a table, since which the tumour has increased very rapidly in size. It is much smaller now than it has been, and has always been moveable beneath the surface, rendering the diagnosis somewhat more difficult as to whether the contents of the tumour were fluid or medullary. Having heard the above particulars of the case at his first visit, Mr. BRODIE observed that it was a tumour of the precise nature of which he confessed himself ignorant. It did not appear to be connected with the kidneys, as it could be felt close beneath the skin, and it did not push the intestines before it, as it would have done had those viscera (the kidneys) been involved. In the cases which he had seen of tumours connected with the spleen, they in general presented themselves lower down, and more towards the pelvis than this did. He (Mr. B.) was more inclined to the belief that this tumour was connected with the liver, and attached to some part of the left lobe of that viscus. He had seen two cases of tumours connected with the liver, which were somewhat similar to this. These cases he had published. He would not recommend such a tumour as this to be punctured with a needle or lancet, as in that case, unless it were attached to the peritoneum by adhesions, it would if it contained fluid become effused into the peritoneal cavity, and occasion inflamma-

tion, and most probably death. The best method of opening such a tumour, was by means of a flat trocar with a canula, which would prevent any occurrence of accident. He would, however, turn the symptoms of the case over in his mind as to what was best to be done, and in the mean time order the patient ʒi of the liquor potassæ in ʒiss of the compound infusion of gentian twice or three times daily.

March 28. The patient has continued the use of her medicine, and her general state of health remains good. The tumour is manifestly larger, both to the eye and the touch, and is presenting more prominently forwards as well as laterally. Mr. Brodie remarked, that of course in coming thus forward it would contract adhesions, which would render the operation of puncturing it a matter of greater ease to the surgeon as well as safety to the patient.

Matters remained in this state for a few weeks with both patient and surgeon, when the latter finding the tumour had become much more prominent by the 30th April, proposed on that day to puncture it, which was done, as above recommended, with a flat trocar and canula, and about ʒviij of clear watery fluid were drawn off from the tumour, and the sac was rather roughly handled and squeezed to get out more, but unsuccessfully. On testing the fluid by heat and nitric acid, but little coagulable matter was detected in it, it being but very slightly clouded.

On the following day the patient vomited; there was excessive pain and tenderness over the tumour; the tongue white; the bowels confined, and the countenance anxious; symptoms which strongly indicated the presence of inflammation in the cyst of the tumour. These symptoms were met by the usual treatment; leeches and fomentations to the part; calomel and an aperient enema. On the following day the belly was swollen, painful and tender on pressure, and there was a puffy swelling in the situation of the tumour. The usual antiphlogistic treatment was adopted. No other symptoms supervened, and the above treatment was continued until May 12, when the tumour was found to be again enlarged and painful, and an obscure fluctuation was perceptible in it, but not sufficient in Mr. Brodie's opinion to warrant the risk of making another opening; consequently nothing was done, and in a few days this fluctuation disappeared, diarrhœa came on, and there was noticed pus in the feces.

May 29. For the last three days, purulent matter has been discharged per anum with the feces, which have been fluid; and this morning the parietes of the original membranous cyst of the tumour were found to have been discharged with the feces. The cyst was about as large as an orange. From this period the diarrhœa and febrile symptoms subsided, the patient regained her health and strength; the only marks left being a slight induration evident in the original situation of the tumour, and she was discharged from the hospital perfectly well on the 7th of June. Two months afterwards, when the immediate interest of the case had passed away from the mind of every pupil, Mr. Brodie took up his case-book, and, under the deceptive guise of a clinical lecture, made the following remarks upon this case:—

"Gentlemen,—Having read to you the notes of this case, there can be no doubt, I think, that the cause of all the symptoms following the puncture of the tumour arose from inflammation coming on in the membranous cyst. Suppuration followed, and eventually ulceration took place through the intestines (at the transverse arch of the colon most probably), and it escaped with the feces through the rectum. Twelve years ago, I was requested to see a lady who had a tumour in the right hypochondriac region, somewhat similar to this, but larger, more painful, and accompanied with greater difficulty of breathing. The physician who was in attendance supposed the case to be one of abscess in the liver; and I thought so too at first: but after watching it carefully for some time, I punctured it, and let out a quantity of watery fluid. I brought the edges of the wound in contact together by plaster and bandages. There was cough for three weeks, partly owing to hysteria, and partly to the abstraction of pressure from the diaphragm. Eventually this patient recovered. One year after this, I had a little boy in the hospital, with a similar tumour. I punctured it, and there escaped out one pint and a half of clear watery fluid. No inflammation followed. The boy went out quite well, and I have not heard that he has had any return of the disease.

"Now you will sometimes find membranous cysts containing a clear watery fluid situated in the breast. Sometimes you will also find a cyst containing a dark turbid fluid, and having much coagulable matter in it. These latter tumours generally end in malignant disease; but where the cysts contain a clear watery fluid they do not end thus. You may puncture these and let out the fluid, but if you dissect out the tumour it will be the surest way of curing it. I knew a lady who came to me with an enlarged globular tumour of

the heart. I punctured it with a needle, and there came out a wineglassful of clear watery fluid. I recommended her to have it dissected out, but as she wished to have the operation postponed, I prescribed for her the following discutient lotion, which was formerly recommended by Mr. Pott, and which is a very good one for the purpose:—

"℞ *Liq. Plumb. Acet. Dilut.* ʒi. *Sp. Tenuior, Sp. Camphor.*, aa ʒiiiss. M. Fiat embrocatio paste affect. applic.

"In three weeks time after she first began the use of this embrocation, she wrote to me to say that she was ready to have the operation performed, and I went to her fully prepared to do it; but when I came to examine the tumour I found that it was gone; it had entirely disappeared under the use of this embrocation; and I knew another case similar to this in which the same thing happened. But this embrocation will not do always; it will be of no effect in those cases of cyst which contain a brown turbid serum, and which are more commonly met with. Tumours containing this same kind of watery fluid, are occasionally met with in the testis and spermatic chord, from encysted hydrocele. In the encysted hydrocele of the testis, the membranous cyst is situated between the membrane of the testis and the membrane of the tunica albuginia, splitting and separating these from one another. In the epidydimis it is situated between the tubuli of the epidydimis and the tunica vaginalis. Such a cyst is termed an encysted hydrocele, or a double or lobulated testis. An encysted tumour of the spermatic chord has been mistaken for a hernia. It may be distinguished from a hydrocele by its shape, situation, and the fluid it contains, which is thin and watery; it is rarely that serum is found in it.

"In the liver these tumours sometimes exist as large as a marble or an apple, and there is no reason why they should not increase to any size or magnitude; they are generally situated under the peritoneum, between it and the gland of the liver, and sometimes they are connected with the spleen.

"In the first two cases I saw no inflammation followed by the opening of the cyst; in this case you know that inflammation did follow, and that the cyst ulcerated through into the colon. Had it not done this, I should have punctured it, and the cyst would probably have come away through the integuments. It is all very well if the cyst comes away, as you are then certain of cure, but for this purpose the patient must go through a long inflammatory process, which may endanger life. In the two first cases I had, I took care not to squeeze out the contents of the cyst, but in this case I remember I did use pressure, which I find is a bad thing. If, therefore, you should have a case of this kind, use no pressure whatever, but open the abscess carefully to let the matter run out. If the fluid re-collects, puncture it again and let the fluid out."

BARTHOLOMEW'S HOSPITAL.

SCROFULOUS AFFECTION OF THE KNEE-JOINT.—AMPUTATION.

The subject of this disease, James Beckelow, ætat. fifteen, was admitted into Henry's Ward, on Friday the 2nd of October. His general appearance indicated great loss of animal power; there were pain and considerable enlargement of the right knee-joint, which was totally immoveable; his pulse was regular and soft; he was much emaciated, and the diseased limb was of smaller dimensions than the healthy one. There were two or three ulcerated spots on the anterior surface of the swelling.

The patient stated, that the disease had been gradually progressing towards its present state during the last two years, but he could not remember any circumstance that would induce the supposition that it originated in external violence. The malady had advanced too far to allow an expectation of sanative effects from topical applications, and it was, therefore, deemed necessary, in order to save the life of the little sufferer, to remove the diseased limb.

This operation was performed in the usual manner by Mr. Lawrence, with the circular section, on Saturday, and on the succeeding Monday that gentleman exhibited the morbid limb previous to his surgical lecture. The articulating surface of the femur was very soft, and in some parts quite denuded of its cartilaginous covering by the ulcerative process. The synovial membrane was very rough and much thickened, and presented a deeper colour than usual, it was also perforated by several fistulous openings.

October 7. The patient is in very good spirits, and appears to be doing well.

LITHOTOMY.

William Stringer, ætat. 6, was brought to the hospital on the 1st Oct., and placed under Mr. Earle's care in Darker's Ward. The little patient appeared to be

in a very good state of health, but on examination was discovered to have a large-sized calculus in his bladder. Mr. EARLE could not succeed in introducing a sound of the ordinary curvature, which difficulty he imagined to originate from a malformation of the corpus spongiosum penis. A staff of smaller curvature was first passed, and the operation performed in the usual manner. The stone being very large and the pelvis small, it was necessary to use some force in the extraction, and a portion of the stone was broken off in the bladder. This was afterwards removed by the scoup. Mr. EARLE observed after the operation, that from the size of the calculus he had no doubt but that it had been forming from birth. From its appearance he said he should pronounce it to be composed of cystic oxyde externally, and internally of lithic acid, but that this would be clearly ascertained by Dr. HUE, to whose analytical tests the stone was about to be subjected. The result has not yet been stated.

October 7. The water passes freely through the wound in the perineum, and also by its natural passage. The little fellow says he experiences no pain, and appears to be going on very favourably.

BRITISH SCIENTIFIC ASSOCIATION.

SIR C. BELL read a lecture on the nervous system, the most important part of which was his announcement of two discoveries by his assistant, Mr. Newport, of the spinal marrow of the lobster, and a medullary tract of spinal marrow in the *sphinx ligustra*, from which nerves were distinctly traced extending to the respiratory organs of that animal. These new facts analogically confirm what has been usually regarded as the most dubious part of Sir C. Bell's views of the nervous system. The only other novelty in his lectures was a recommendation of some improvements in the mode of examining the brain; he strongly advised anatomists to use brains that had been preserved for several months in spirits, declaring, that in them the course of the fibres could be traced more distinctly than in others.

Dr. PROUT'S ATOMIC VIEWS.—An important discussion in the *Chemical Section* arose from the attack made by Professor Clarke, of Aberdeen, on Dr. Prout's account of the atomic analysis of carbonate of lime. Dr. Thomson ably defended Dr. Prout's views; he stated, that what is chemically designated an atom is, in fact, a congeries of atoms, for it was little short of absurdity to speak of the fraction of an atom. It was stated as Dr. Prout's opinion, that all elementary substances are multiples of hydrogen. Thus carbon, oxygen, &c., are, in reality, certain combinations of atoms of hydrogen. This singular theory has revived the popularity of the German hypothesis, first broached, we believe, by Kant, that everything is eliminated from a common principle.

HYDROPHOBIA COMMUNICATED BY A COW.—It has been asserted by some who hold a high rank both in the veterinary and medical world, that rabies can be communicated by those animals only who use their teeth as weapons of offence. We have often wondered at the unhesitating and dogmatical way in which this assertion is made, for we are ignorant of any theoretic principles on which it could be possibly grounded; it is contrary to occasional facts, well known to all who have paid attention to the subject; and it is likely to lead to dangerous and fatal neglect of proper precautionary means. A late number of the *Journal Théorique* has added another to the cases of death succeeding to inoculation with saliva from a rabid ruminant, and also of the fearful period during which the virus may remain inert in the frame. A cow in the department of Jura was bitten by a dog affected with rabies. Some time afterwards she became dull, and refused all kinds of food. She approached some water, which was offered to her, and made repeated but fruitless efforts to swallow it. A woman that had the care of her imagined that some foreign body was lodged in the pharynx, and prevented the animal from swallowing; and she thrust her hand into the mouth of the beast, and to the very back part of it, but found nothing. In doing this her hand was slightly scratched by one of the teeth of the animal. It was soon afterwards sufficiently plain that the cow was rabid, and she was destroyed by order from the magistrates. A year afterwards the woman began to have frightful dreams, in which she thought that she was pursued by two enraged animals,—the cow, and the dog by which it had been bitten. She had dread of water, and she died of rabies in a state of horrible suffering, attended by circumstances peculiarly lamentable.—*Veterinarian, Oct.*

To the Editor of THE LANCET.—Sir, You will oblige me by inserting the following letter with regard to small doses of calomel in the cholera, and at the

same time do justice to Mr. E. R. Mark, Surgeon of Newcastle, whom I was with during the first attack of cholera at that town. Long previous to either an attack in Sunderland or Newcastle, Mr. Mark mentioned to me his determination to pursue no other course of treatment than that of giving small doses of calomel combined with a very small proportion of opium, should Newcastle be visited with the disease; and when it did make its appearance in Newcastle, he adopted this treatment, and continued it through the whole time of its invasion, with the greatest success. Many surgeons adopted the same course of treatment, and found it equally successful. I remain, your most obedient humble servant,

SAMUEL COATES MASON.

No. 17, Gower Place, Oct. 8, 1834.

SPECIMEN OF DR. MACMICHAEL'S EVIDENCE BEFORE THE PARLIAMENTARY COMMITTEE:—The Chairman asked this witness in the course of his examination,—"In your time did Oxford possess *any competent means of teaching medicine?*" Dr. Macmichael answered, "YES," when the following questions and answers were exchanged. The manner in which the witness supported his first affirmative answer by subsequent negative replies, was worthy of the Royal College which supplied him. (*Vide* "Medical Evidence" LANCET edition, page 53):—

759. Describe the courses of lectures given in your time, and the subjects of the various branches of medical science taught?—The lectures on anatomy were very good.

760. Were there any lectures on physiology?—*No.*

761. Any on morbid anatomy?—That was included in the lectures on anatomy.

762. Any on pathology?—*No.*

763. Any on materia medica?—*No.*

764. Any on therapeutics?—I was a clinical pupil of Dr. Wall's.

765. There was clinical practice?—Yes; but he *gave clinical lectures.*

766. There was no series of such lectures?—*No,* but the cure of patients in the hospital was the best way of teaching that.

767. What period of attendance on hospital practice was considered necessary?—I *do not know;* there was no stipulated time; I attended for a year.

768. It was entirely voluntary on your part?—*I paid* THE FEES.

769—That was not essential to your passing your examination before the Regius Professor?—It enabled me to *pass it better.*

770. Perhaps less than a year's study would have been sufficient for passing the sort of examination you appear to have undergone?—*I do not consider that I studied my profession at Oxford.*

QUACK DENTISTS.—A correspondent, who has given us his name and address, informs us, that the poisonous mixtures of the Drs. JORDAN of Newman-street and Caroline-street, Bedford-square, having ceased to find purchasers, the proprietors have adopted a new mode of making money; they have changed their names and become professors of the dental art, holding out the most magnificent promises of relief in every case of suffering arising from the diseases of the teeth and gums, and informing the public, in a spirit of fairness and equity, at the one establishment (for there are two), that the charges are "the same as *at Constantinople,*" and at the other, that "the charges are the same as *at Kamschatka.*" The trade is carried on at the old houses, under the names of Monsieur Le Drag, and Mr. Johnson.

SSIL FISH.—At the late meeting of ritish Association at Edinburgh, Mr. Blackadder exhibited a fossil fish from Glamis Millstone Quarry, which is situated in the old red sandstone. M. Agassiz refers this fish to the family of the "Ganvides," and to his genus Cephalaspis, which is characterized by the immense "cuirasse" that envelops, or rather forms its head. This fish is quite new to the scientific world, and has been now found entire for the first time.

(From a Correspondent.)—The Solicitor to the self-appointed committee of lecturers (Messrs. Geo. Tuthill, Wm. Lawrence, and Thos. Watson) who opposed the grant of a charter to the London University before the Privy Council, and then presented a lawyer's bill of 440*l.* to the lecturers on whose behalf they professed to act, with a request for its immediate payment,—the solicitor to that committee was the brother of William Lawrence, surgeon, one of the committee, and member of the Council of the London College of Surgeons.

The following advertisement contained in the *Cork Evening Herald,* has been forwarded to us:—"To the Subscribers to

the Cork General Dispensary.—Gentlemen,—I take this public manner of resigning the situation of one of your Physicians, after a service of eight years, four and a half of which were entirely gratuitous, and the remainder of the time on a salary that could be called but nominal, viz.:—*twenty-five pounds* per annum. I regret to say that under the management of your conducting Committee no physician, with the feelings of a gentleman, can continue to act. I have the honour to be, Gentlemen, your obedient humble servant, W. F. Porter, 72, Patrick-street, Cork.

"*** This is the second similar resignation within three months, from the same cause. Sept. 16, 1834."

CORRESPONDENTS.

After having carefully read the letter of "A Governor in the Southern district of the London Southwark Midwifery Institution," we confess that we do not think the gravamen expressed in it, a just subject of complaint. The motion of Dr. Waller seems to have been openly made and publicly discussed, and the decision doubtless was fairly obtained from the majority of those who were present. Our correspondent must know that we are wholly opposed to these mismanaged and misnamed petty medical "charities," which are instituted and supported to serve the private ends of the medical officers; and we are by no means surprised or sorry to hear of events occurring in the management of them which tend to "injure their *prosperity*" by disgusting and alienating the subscribers. The supporters of the resolutions on this occasion are accused of having been actuated by feelings of personal interest. Doubtless these had their weight, but a similar charge may be brought against the managers, real or ostensible, of every dispensary, infirmary, and lying-in institution, in London. At any rate, if Dr. Waller rules in the London and Southwark Midwifery Institution, the subscribers are willing subjects, for the threat of resignation was submitted to by them with readiness. The fittest source for complaint will arise when any of the governors can show that the medical officer who has thus voluntarily doubled his duties, neglects the patients who are placed under his care.

The following communications have been received:—*Mr. Wm. English's* letter,—*Mr. Tratpson's* cases of lithotrity,—*Dr. Pryer's* case of spontaneous restoration of sight,—*Mr. Mordey's* remarks on ipecacuanha in cholera,—*Dr. Curtin's* letter on salt emetics in cholera,—a letter headed *Pupils* (which we have not room further to notice this week),—*R. O.*, "Head Quarters,"—*Mr. S. P. Monch*,—*W. H. O.*,—*M. W. A. Thomson*,—*Brightoniensis* (the communication has been excluded hitherto from want of space)—and *Dr. Hovison*, for whose lecture we shall not be able to afford room.

The letter on the *French Medical Concours* is incomplete. The sheets after folio 8 have not been sent, consequently, also, there is no signature to the communication.

As we are very much pressed for space, and the subject has already been ably discussed in the work of *Mr. Wright*, we are induced to decline the remarks and proffered cases forwarded by that gentleman.

W. S. must be explicit.

We cannot suppose *Mr. T. B. P.* to be really ignorant of the cause of the "war." He must be fully aware that such notifications are never made on the cards of respectable practitioners.

Tyro Medicus and *Juvenis*.—The replies would occupy a page. Our correspondents should apply by letter, or by a friend, at the seat of learning itself.

If we did not think that Mr. *J. B*——*d*, of S——t, would be satisfied that our reasons for withholding his letter from publication were good, we would here explain them; but we believe that he will rely on the correctness of our decision against its publication. We are sure that the *caution* is not necessary, as no surgeon would buy an expensive instrument, the use of which was not verified by experience, and the personal charge of disingenuousness should not go further in a public print, than it was pressed on a former occasion. Whenever Mr. E. B. has perfected his apparatus, his account of it (if forwarded) should be accompanied by an *engraving* on wood, prepared for our columns.

Mr. Lumley informs us, that a life of Linacre, "physician to Henry VIII., and founder of the College of Physicians," with memoirs of his contemporaries, is in the press, written by the late Dr. Noble Johnson, and edited by Mr. Graves, of the Inner Temple.

The Secretary of the "Weymouth and Dorchester Medico-Chirurgical Book Society," has favoured us with the annual reports of that association. Whatever tends to unite the profession, either in local bodies or in the general mass, is a source of interest to us, and societies for medical discussion or the formation of libraries may always be advantageously founded. The libraries, however, should always be made libraries of "reference." Such institutions are so very rare in the profession, that it would be wise to devote the whole of the funds of book societies to the collection of the more costly productions. Periodicals are luxuries which all professional men who wish to keep pace with the knowledge of the times should purchase and keep within reach. Their form, price, periods, and contents, are especially adapted for such an appropriation, and in the highest state of mental cultivation in the profession. Every man will sit under his own fig-tree with his own periodicals, fresh and moist from the press, no "secretary" daring to take them away for "further circulation."

Our second notice of Dr. Holland's work is unavoidably postponed.

Errata.—In leader, last week, page 73, line 13, *for* labyrinth *read* laboratory. The error occurs only in part of the impression.

In Mr. Dermott's remarks, page 38 (Sept. 27), line 27, *for* on *read* or.

In Student's Number, page 7, College Regulations, article 2, *for* six years *read* five years.